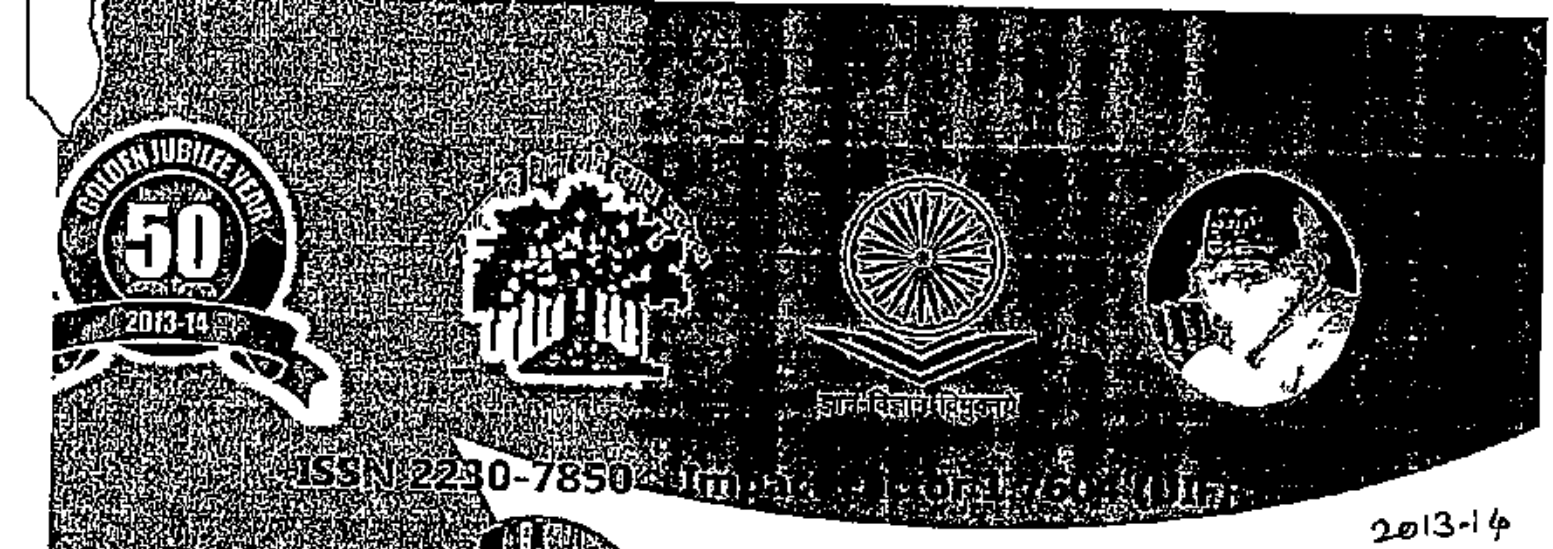

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द्वि दिवसीय राष्ट्रिय संगोष्ठी
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कहानीकार रत्नाकुमार सांभरिया
('फुलवा' कहानी के विशेष संदर्भ में.)

प्रा. शहाजी शामराव जाधव.

हिंदी विभाग
डी. के. ए. एस. सी. कॉलेज, इचलकरंजी. जिल्हा – कोल्हापूर (महाराष्ट्र)

सारांश :

सुपरिचित कथाकार रत्नकुमार सांभरिया दलित कहानीकार के नाम से जाने जाते है । उनकी कहानियाँ एक नये युग को जन्म देती हैं आज के परिपेक्ष्य में जिसे 'चेतना का युग' कहा जा सकता है ।उसके सृजन का अपना संसार है, अपना संस्कार है और अपनी जमीन है। जमीन जो उन्होंने खुद अपने हाथों उर्वरा की है। इस जमीन में दलित समाज के खून–पसीने की गंद है।

प्रास्ताविक :

जीवट, जिजीविषा और जज्बें के फलस्वरुप उनकी कहानियों के पात्र न हताश होते है. न निराश होते है. न थकते है. और न हारते है। विषम परिस्थितियों का कदम–दर–कदम मुकाबला करते मान–सन्मान स्वाभिमान और मर्यादा का जीवन जीते है। सांभरिया कहते है– "कहानी का पात्र चाहे कितना छोटा हो, उसकी प्रवृत्ती पीपल के बीज जैसी होनी चाहिए । पीपल का छोटासा एक बीज पत्थर को फाड कर उग जाता है और आपना आकार लेता है।"

दलित कहानी (दलित समाज की कहानी) जिसे अंबेडकरवादी कहानी भी कहा जाने लगा है, जिस कहानी की प्रवृत्ति और रुपबंध में चेतनामूलक क्षमता होगी, वही कहानी, दलित कहानी होने का सेहरा बंधवा पाएगी।

फुलवा :–

प्रस्तुत कहानी की नायिका फुलवा दलित है। वह एक छोटे से गॉव में रहती। उस गाव मे जात–पात के बंधन बड़े थें। फुलवा को गॉव के जमींदार, सावकारों के खेतो और घरों में काम करना पडता था कही बार अपमानीत होना पडता था। एक दिन फुलवा का पति जमींदार के एक बिगडैल बैल को सीधा कर रहा था। नकेल ढीली पाते ही उस गुस्सैल बैल ने उसके पेट में सींग डाल दिया। वह तडपा, फड़फड़ाया। फुलवा की मांग पुछ गई थी। फुलवा का बेटा राधामोहन दसके साल का था। फुलवा को राधामोहन की चिंता रहती थी। वह पढाई कर रहा था। फुलवा जमींदार के घर घास छीलती, पानी भरती और पशुओं को चारा–पानी करती थी। फुलवा पर जमींनदार, सावकार की बुरी नजर थी। फुलवा की जात वालों को जमींदार के कुएँ पर चढने की मनाही थी। वह जिस कुएँ से पानी लाती थी, वह आधा कोस दूर था, उसके घर से। गॉव का जमींनदार रामेश्वर कुएँ पर नहा रहा था। फुलवा कुएँ के घेर के नीचे खडी थी मटका लिऐ। वह रामेश्वर को बार–बार हाथ जोड रही थी–"आज मुझे गॉव जाना है रामेश्वर जी। दो बाल्डी पानी उंडेल दो मटके में।"

फुलवा का बार–बार 'रामेश्वर' कहना रामेश्वर को काट गया था। उसने गुस्सा कर मटके पर थूक दिया था। फुलवा ने मटका वहीं फोड दिया और वह रोती आँख लिए घर लौट आई थी। फुलवा अपने बेटे को लेकर गॉव छोडती है और शहर चली जाती है। शहर में छोटे–मोटे काम करके अपने बेटे की पढाई ध्यान देती है। समय बडा बलवान होता है। फुलवाका बेटा राधामोहन एस.पी. बन जाता है। शहर में उनका बडा नाम है। वह अपने लिये तथा माँ फुलवा के लिए बडा महल बनवाता है। महल में सभी सुख–सुविधाएँ करता है। फुलवा इतनी बडी होकर भी मानवता को भूलती नही। दिन बदलते जाते है। जमीनदारोकी जमीन हिस्सों में बॉट गई। परिवार बढ़ने लगें रामेश्वर अब जमींदार नहीं रहा। उसके घर की हालत बिघड गई। इसलिए उन्हें फुलवा की याद आती है। उन्हे मालुम है कि फुलवा का बेटा शहर में बडा अफसर बन गया है। इसलिए आज वह उसी फुलवा के बेटे से अपने बेटे की नौकरी की सिफारिश करने आया है।

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Employee Empowerment, Job Satisfaction And Corporate Employee Performance: A Literature Review

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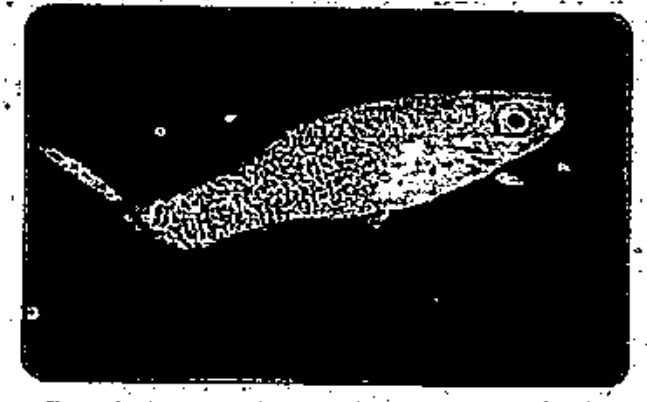

Determination Of Dna And Rna After Exposure Of Cadmium Chloride To The Freshwater Fish, Ophiocephalus Striatus

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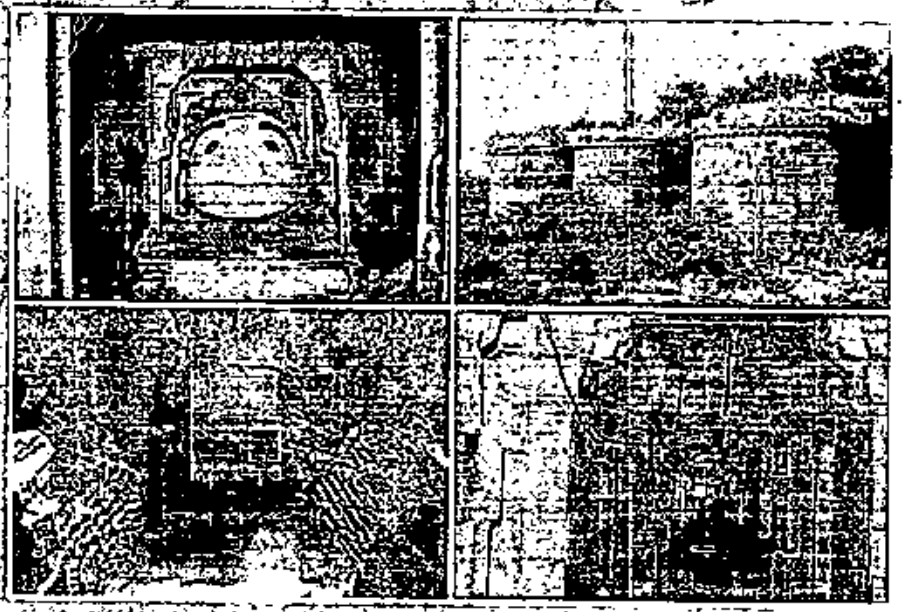

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Indian Drama in English: A Review

Mr. Subhash V. Shelake
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Arts and Commerce, Panchga

Drama is a literary form for the expression of human sentiments. In it actors play the parts assigned to them and utter the written dialogues. It has visual as well as oral exercises. It not only for reading just like the novel, story or fiction.

The major duty of the dramatist is to cater to the tasks and whims of the audience. So dramatist has to compose the play in such a way that it may be able to satisfy all and sundry wit a much stipulated time. The plays have to entertain a large number of people belonging to differ age groups and having different mind-set. For writing good play, the dramatist should care various things like imagination, aestheticism, dialogue, music, characterization, plot, metaph construction and a depth of knowledge about the psyche of men and manners of society. "Dra is a composite art, in which the author, the actor and the stage manager all combine to produce total effect." [1]

The playwright has to present the whole thing within a very few hours in a drama. For same he or she has to observe great economy in handling the characterization and delineation events. On the contrary, the novelist is not bound by economy or precision. B. Prasad writes: "T dramatist, however, has to work with a, in short, will not be likely to be produced unless it confo to a great many material requirements which the novelist is free to ignore"[2] number of collaborat all of whom have to be taken into account, the audience, the actors, the producer, the scene pai the dress maker, the musician, the electrician and many others. He has to consider costs mechanical and physical limitations. To take but one instance, he cannot make one role un long, for that would put an undue strain on a single actor, night after night, and would be monoto for the audience.

The origin of drama in India dates back to the Christian era. Bharat, the great sage, that once all gods prayed to Brahma, the Creator of the universe, to produce a thing of entertainment possessed with the qualities of the visual and the auditory senses, which c enjoyed alike by all sections of society. Then Lord Brahma, took the nectar of all the four V plot from the *Rigveda*, music from the *Samveda*, acting from the *Yajurveda*, and 'rasas' fro *Atharveda* and thus made drama the fifth veda.

In *Ramayana*, Valmiki, the first poet mentions the word 'nat' or 'nartak', which actor. Vyasa, in *The Mahabharata*, defines drama as a blending of many things – story, poet action. But the origin of the Indian theatre is still obscure. Even in Vedic period, dr

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Wollea bharadwajae Singh from Satara District Maharashtra

Kamble Priyadarshani , C T Karande[1] and V C Karande*

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Abstract

Genus *Wollea* comprises four species viz., *Wollea saccata* Born et Flah. (1888) , *Wollea bharadwajae* R. N. Singh (1942), *Wollea lemnae* Guerrero (1947), *Wollea udaipurensis* Gupta et Kumar (1968). From these species *Wollea saccata* Born et Flah., *Wollea bharadwajae* Singh R. N. and *Wollea udaipurensis* Gupta et Kumar have been reported from India. Present paper deals with first time report on the occurrence of *Wollea bharadwajae* Singh R. N. from Satara district. A comparative account with the forms recorded earlier and it's taxonomic status has been described in detail in this communication.

Keywords: Blue green algae, Genus, Satara, *Wollea bharadwajae*

Introduction:

Amongst the unbranched filamentous heterocystous blue green algae order Nostocales is represented by large number of genera. The differentiation of these genera is largely based on the shape of the colonies, filaments, arrangement of heterocysts and akinetes as well as shape of the terminal cells. Of all these forms of Nostocales Genus *Wollea* stands aloof as it is reported from only limited localities. Originally the Genus was described from stagnant ponds by Wolle (1887) as *Sphaerozyga saccata*. However it was later described as *Wollea* by Bornet and Flahault (1888). Additional two species of this monotypic genus were later on described from India from fresh water ponds and paddy fields (*Wollea bharadwajae* R. N. Singh 1942) and (*Wollea udaipurensis* Gupta et Kumar 1968). Third species *Wollea lemnae* Guerrero (1947) was described from the parenchyma of aquatic plant *Lemna trisulca* from pond in Spain.

By considering the common features and important generic characters taxa like *Anabaena ambigua* Rao, *Anabaena vaginicola* Fritsch et Rich, *Anabaenothrix cylidrica* Randhawa and *Anabaenothrix epiphytica* Randhawa have been included in the genus *Wollea* (Singh 1942). The current status of classification of *Wollea* assigns this genus to order Nostocales, family Nostocaceae (Komarek and Anagnostidis 1989) as well as subsection IV. I in bacteriological classification (Castenholz 2001).

The species of *Wollea* are characterized by gelatinous macroscopic cylindrical to subspherical colonies having smooth surface, sometimes these colonies appear tubular. The trichomes are straight and arranged compactly, unbranched, uniseriate, prominently constricted at cross walls and densely arranged in the mucilage. Apical cells are usually conical, individual trichomes does not possess sheaths, heterocysts are placed intercalary and are solitary. The prominent feature of this genus is presence of spores which arises paraheterocytic in short series on both sides of the heterocyst. All these features mostly resemble the genera *Anabaena* and *Nostoc*.

The molecular phylogenetic relationship between the various genera of order Nostocales has been studied by (Kozhevnikov and Kozhevnikova 2011). However in India the genus was reported from localities viz., Benaras, Gorakhpur and Delhi (Singh and Venkataraman 1957), Tirupati in Andhra Pradesh and Rahatgarh M. P., Uttar Pradesh (Prasad 1952), Udaipur (Gupta and Kumar 1968).

Materials and Methods

Study area

Satara district is located in Western Ghats of Maharashtra located between 17.5 to 18.11 N latitude and 73.33 to 74.33 to 74.54E. The climate ranges from rainiest region in Mahabaleshwar which has an average annual rainfall over 6000mm to driest region in Maan tahasil where average annual rainfall is about 300mm. Average maximum temperature recorded is 37.5^{0}C while 11.6^{0}C is the lowest average minimum temperature recorded. These conditions may contribute to the presence of unique blue green algae in the study region.

Soil samples were collected from Kas. Algal samples in sterile plastic bottles and brought to laboratory. Part of sample was used for isolation. Using serial dilution technique and streak plate technique species was isolated and the axenic culture was raised. Isolated samples were observed under Olympus CH20i microscope and identified (Desikachary 1959 and

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Demo Circuit for Over-Voltage Protection

MILLIND M. SUTAR, DR J.L. BHOSALE AND PROF. P.B. JOSHI

Over-voltage protection circuits are used to protect voltage-sensitive loads. Voltage transients may occur due to a number of reasons such as transformer switching, load switching, and short/open circuit in rectifier and regulator circuit. Such transients can affect proper functioning of an electronic circuit or even damage it. Hence it is necessary to use an over-voltage protection circuit to protect expensive loads against all the sources of voltage transients.

In electronics engineering, where over-voltage protection experiment is included in the syllabus, the present circuit can be used to very effectively demonstrate the effect to students.

Circuit and working

Fig. 1 shows the demo circuit for over-voltage protection. It is built around a rectifier comprising four 1N4007 diodes (D1 through D4), 10V voltage regulator IC 7810 (IC1), SCR 2P4M (SCR1), transistor BC548 (T1) and a few other components. SCR1 is used as a protective component.

If voltage exceeds beyond the withstanding voltage capacity of the device that needs to be protected (6V bulb here), the circuit disconnects the device from supply. To demonstrate this, potmeter VR1 connected across regulator IC1 is used to increase the voltage at the output of regulator IC1. When the output voltage of IC1 increases, voltage at the base of transistor T1 also increases, which triggers SCR1 through resistor R6.

TABLE I
Output Voltages Corresponding to Different Settings of VR1

1 kilo-ohm	10.30V	Ok
820 ohms	10.94V	Ok
680 ohms	11.60V	Blown

TABLE II
Test Points

TP0	0V, GND
TP1	10V when S1 'on'
TP4	0.7V (when VR1 = 1kilo-ohm)
	1.5V (when VR1 = 680 ohms)
Across TP2 and TP3	230V AC when S1 'on'

PARTS LIST

Semiconductors:
IC1 - 7810, 10V regulator
SCR1 - 2P4M SCR
T1 - BC548 npn transistor
ZD1 - 11V zener diode
D1-D4 - 1N4007 rectifier diode

Resistors (all ¼-watt, ±5% carbon, unless stated otherwise):
R1, R3 - 10-kilo-ohm
R2 - 2.2-kilo-ohm
R4 - 50-ohm, 5W
R5 - 2.2-mega-ohm
R6 - 6.8-kilo-ohm
VR1 - 1-kilo-ohm potmeter

Capacitors:
C1 - 470 µF, 40V electrolytic
C2 - 100 µF, 25V electrolytic

Miscellaneous:
X1 - 230V AC primary to 15V, 1A secondary transformer
CON1 - 2-pin connector for 230V AC mains
CON2 - 2-pin connector for 6V bulb
CON3 - 2-pin connector for digital multimeter
S1 - On/off switch
F1 - 500mA fuse
- 6V bulb

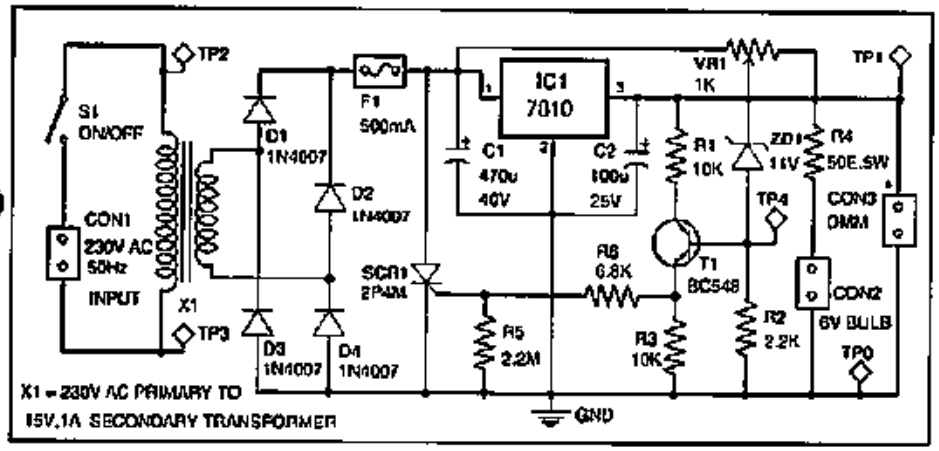

Fig. 1: Demo circuit for over-voltage protection

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Study of gonadosomatic index of fresh water fish *channa gachua*

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ABSTRACT

The scientific management for obtaining high yield of fish production eventually calls the adequate and in-depth study of breeding mechanism. In order to complete the task present study was undertaken to trace accurately spawning period of *C. gachua*. This is reported in terms of gonadosomatic index which express the relative change in gonad weight to the percentage of body weight. During present study the peak value of GSI was observed only once in the month of May (47.29%) indicating only one spawning period in *C. gachua* i.e. from June to August.

Key words: *Channa gachua*; Gonadosomatic index; preparatory period; spawning

INTRODUCTION

Due to ever increasing population and industrialization availability of agriculture land is reducing day by day. Moreover in a developing country like India where 30% of population is still suffering severely by malnutrition and health hazards fish food may be useful tool to provide proteineous and easily digestible food item. The scientific management for obtaining high yield of fish production eventually calls the adequate and in-depth study of breeding mechanism. In order to complete the task present study was undertaken to trace accurately spawning period of *C. ghachua*. This is reported in terms of gonadosomatic index which express the relative change in gonad weight to the percentage of body weight.

MATERIALS AND METHODS

Material for the study was obtained from Godavari river dist. Nasik (Gangapur dam). Matured and Immature fishes were weighed along with the weight of gonads monthly. Later % of gonad weight in relation to the total body weight was calculated by using the following formula.

$$Gonadosomatic\ index = \frac{weight\ of\ gonads}{weight\ of\ body} X\ 100$$

GSI of *C. ghachua* was calculated. After calculating the % of GSI the period of maturity of fish was divided into following stages (Quyyam and Quasim, 1961) *Ophiocephalus puntatus.*

1) Prespawing phase
2) Spawning phase
3) Postspawning phase
4) Preparatory phase

Gonadosomatic index of fish increases with maturation being maximum during peak period of maturity and abruptly declines after spawning.

RESULTS AND DISCUSSION

GSI of *C. gochua* were estimated monthly for females and values are expressed as percentages in table No. 1. GSI values rises from 20.5% in March to 47.29% in May indicating prespawning period. It gradually decreases from 26.3% in June to 8.41% in August indicating the spawning period. It abruptly decreases uptill 5% in September to 8.47% in November indicating post spawning period. It gradually increases from 10.74% in December to15.2 % in February indicating preparatory period. In *C. ghachua* peak value of GSI is observed only once in the month of May indicating only one spawning period from June to August. Similar observations were recorded by Nazir *et al.*, 1978 in *Barbus luetus;* Brewer *et al.*, 2008; Sindhe *et al.*, 2004 in *Notopterus notopterus;* Brewer, 2008 in small riverine fishes, Mchilsin Musri Musman, 2010 in *Rasbora towarensis.*

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HISTOPATHOLOGICAL CHANGES IN THE OVARY OF FRESHWATER FISH *PUNTIUS TICTO* (HAM) UNDER DIMETHOATE TOXICITY

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KEYWORDS
Histology
Acute and chronic toxicity
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Puntius ticto

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ABSTRACT

Histopathological changes induced by dimethoate on the ovary of *Puntius ticto* (Ham) were studied. *Puntius ticto* a freshwater fish exposed to lethal (5.012ppm) and two sublethal (2.506 and 1.253ppm) concentration of dimethoate for acute (four days) and chronic (sixty days) exposure. After lethal exposure ovary showed significant changes. There was partial disruption of ovarian follicles and vaculation in cytoplasm of germinal cells. The interfollicular connective tissue was damaged. The cytomorphological structure of ovarian follicles got deformed and elongated, losing their typical configuration. Necrosis and fibrosis in connective tissue and damage to yolk vesicles of maturing oocytes was observed. Degenerative oocytes became phagocytic and exhibited atresia. Chronic exposure results also shows significant changes in the ovary and are dose dependent

INTRODUCTION

Pesticides are the major source of water pollution, as it eradicate the economically important species either indirectly through breaking the biological chains or directly produces toxic stress and chemical changes. Predominantly, as a result of extensive application of pesticide, large scale mortalities of fish occurred widely (Srivastava and Srivastava, 1994). Fishes are very sensitive to a wide variety of toxicants in water, various species of fish show uptake and accumulation of many contaminants or toxicants such as pesticides (Herger *et al.*, 1995) Due to accumulation of these pesticides in tissues produces many physiological, histological and biochemical changes in the fishes and freshwater fauna by influencing the activities of several enzymes and metabolites (Nagarathnamma and Ramamurthi, 1982). The pervious histopathological studies of fish exposed to pollutants revealed that fish organs are efficient indicators of water quality (Cardoso et *al.*, 1996 and Cengiz et *al.*, 2001). Therefore, it is necessary to study in detail on the histopathological alterations in different organs of fishes and thoroughly investigate them in order to assess the extent of damage.

Dimethoate is an organophosphorous insecticide widely used against vegetable and fruit sucking aphids, mites and saw flies. Exposure to chemical pollutants may cause many molecular, biochemical changes in the fish which precede cellular and systemic dysfunctions. So that, if appropriate parameters are monitored, early warning signs of distress may be detected (Palmes, 1976).

Similarly pesticides are also known to cause various histopathological effects on the ovary of fish (Singh and Sahai, 1985; Rastogi and Kulshrestha, 1990, Deshmukh and Kulkarni, 2005; Verma and Srivastava, 2008 and Pugazhvendan et *al.*, 2009). However there has been little information on the histopathological impact of dimethoate on an ovary of *Puntius ticto*. Therefore, the present investigation was undertaken with a view to study in detail about histopathological changes in the ovary of *Puntius ticto*, under dimethoate toxicity.

MATERIALS AND METHODS

The freshwater fish *P. ticto* were selected from the freshwater sources around Aurangabad city. They were acclimatized in aged, dechlorinated and well aerated water for two weeks in the laboratory. During acclimatization they were fed on alternate days with pieces of live earthworms. The LC_{50} values are determined by following the guidelines given by committee of toxicity tests with aquatic organism (Annon, 1975) and Probit Analysis Method (Finney, 1971). The acclimated fish were exposed to lethal concentration (5.012ppm) for 96h and sublethal concentrations (2.506ppm and 1.253ppm) for 60 days. Simultaneously a control group of healthy fishes were maintained under identical conditions. The 20 healthy fishes showing normal activity were exposed for chronic study. After commencement of exposure period fishes were killed by decapitation and ovaries are removed and fixed in Bouins fluid for 24h and processed according to standard procedure of routine microtechnique. For staining double stain method was

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DIMETHOATE INDUCED HISTOLOGICAL CHANGES IN THE INTESTINE OF FRESH WATER FISH *PUNTIUS TICTO* (HAM).

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ABSTRACT
Puntius ticto, a fresh water fish exposed to lethal [5.012ppm] and sublethal concentrations [2.506 and 1.253ppm] of Dimethoate for 96 hrs and 60 days respectively. After exposure period Histopathological changes in the intestine of *Puntius ticto* were assessed. Acute exposure resulted in to cloudy swelling and granular cytoplasm in mucosal cells, broken serosa, bulging and hypertrophic condition was noticed in columnar epithelial cells which secretes excess amount of mucus. Necrotic and bulging conditions were also observed at the tip of villi which lead to rupture of villi. Chronic exposure results in broken serosa, vacuolated submucosal layer, vacuolated longitudinal and circular layer, mucosal layer completely damaged, vacuolated villi and columnar cells were completely collapsed to higher concentration. The severity of damage in the intestine was found to be dose and time dependent.

KEY WORDS: Dimethoate, Intestine, Histopathology, *Puntius ticto*.

INTRODUCTION

With rapid industrialization and increase in human population, the pollution of water bodies has become a universal phenomenon in the present day world (Bela and Prasad 2008). The important sources of water pollution are industrial effluent, domestic sewage, drainage and pesticides, which pollute the river and major sources (Maruthanayagam and Sharmila, 2004). Pesticides and related chemicals destroy the delicate species that characterizes a functioning ecosystem (Khan and Francis,2005). Pesticides are not highly selective but are generally toxic to many macrophytes, non-target organisms such as fish (Ayoola,2008 Franklin et.al.,2010) Fish is good indicator of aquatic contamination because its biochemical stress responses are quite similar to those found in mammals (Mishra and Shukla, 2003). Histopathological biomarkers are closely related to other biomarkers of stress since many pollutants have to undergo metabolic activation in order to be able to provoke cellular change in the affected organism. For example, the mechanism of action of several xenobiotics could initiate the formation of a specific enzyme that causes changes in metabolism, further leading to cellular intoxication and death, at a cellular level, whereas this manifests as necrosis, i. e. histopathological biomarker on a tissue level. (Velkova-Jordanoska, 2002; Roganovic-Zafirova *et. al.*, 2003).

Organophosphorus (OP) pesticides are finding increasing use in recent years since they are biodegradable and therefore persist in the environment only for a short time. Because of their low persistence, repeated applications of these pesticides are being practiced for the control of pests in agricultural fields and thereby large quantities find their way into water bodies (Jyothi and Narayan, 1999). These pesticides enter into the body of aquatic fauna by means of gills, oral membrane, and gastrointestinal mucosa & from general body surface. These are deposited in the tissues and produces toxic effects. Therefore it is necessary to study in detail on the histopathological alterations in different organs of fishes and thoroughly investigate them in order to assess the extent of damage.

The previous histopathological studies of fish exposed to pollutants revealed that fish organs are efficient indicators of water quality (Cardoso *et.al.*, 1996 & Cengiz *et.al.*, 2001). Many investigators have reported the histopathological changes in the intestine of different fish species exposed to pesticides (Kamble, 1983; Srivastava et al 2004; Bhatnagar et.al., 2007 and Banee et.al., 2013). However there has been little information on the histopathological impact of dimethoate on intestine of *Puntius* ticto. Therefore, the present investigation was undertaken with a view to study in detail about histopathological changes in the intestine of *Puntius ticto*, to dimethoate toxicity.

MATERIAL AND METHODS

The freshwater fish *P. ticto* were selected from the freshwater sources around Aurangabad city. They were acclimatized in aged, dechlorinated and well aerated water for two weeks in the laboratory. During acclimatization they were fed on alternate days with pieces of live earthworms. The LC_{50} values are determined by following the guidelines given by committee of toxicity tests with aquatic organism (Annon, 1975) and probit analysis method (Finney, 1971). The acclimated fish were exposed to lethal concentration (5.012 ppm) for 96 hrs and sublethal concentrations (2.506ppm &

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Ostracod Density of Two Freshwater Lakes in India : A Comparative Study

KEYWORDS: Ostracods, Population density, diversity indices, Kagzipura and Mombatta Lakes.

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ABSTRACT *Population density of ostracod of two freshwater in India lakes was monitored from October 2010 to September 2011. Samples were collected using plankton net (pore size 64µ), and analysed with standard keys. Quantitative estimation is done by drop count method of Lackey. A total of 8 species from Kagzipura and 4 species from Mombatta Lake are identified. The population density of ostracod in Kagzipura lake (372 org/lit) is rich than the Mombatta lake (45 org/lit). Species diversity indices are also computed. Results indicate that the population density of both lakes increases in summer and decreases in monsoon.*

INTRODUCTION

Ostracods are bivalved micro crustaceans found almost in all types of water bodies and are one of the most diverse groups of living crustaceans. Although ostracods are abundant and widely distributed but they have received much less attention than Cladocera and Copepoda (Pennak, 1978). Ostracods form a major link in the energy transfer at secondary level in aquatic food web between autotrophs and heterotrophs (Dievanni et. al, 2004).

Ostracods are highly sensitive to environmental variations. As a result changes in their abundance, species diversity or community composition can provide important indication of environmental changes. The species composition, distribution diversity and relative abundance of zooplankton of a reservoir could have marked impact on fisheries and health of the reservoir for public (Mustapha, 2009).

Very few workers have conducted their research on the percent composition and seasonal variation of freshwater ostracods in different parts of India (Ganapati et al, 1943; Vandysh, 2004 and Ramulu et al, 2011). The present paper focused on the comparative study of population density of ostracod in two freshwater lakes Mombatta and Kagzipura in Aurangabad district, Maharashtra, India. The result will contribute to the understanding of the present status of the ostracods fauna in Indian freshwater lakes.

MATERIAL AND METHODS

STUDY AREA

Two sites are selected for this study, namely Kagzipura and Mombatta Lakes. Kagzipura lake is located (latitude 19° 57' N and longitude 75° 15' E) near Kagzipura village, Tal. Khultabad, 17 km away from Aurangabad city. It has a depth of about 8 to 9 meters and is used for irrigation and fishing. Mombatta lake is located (latitude 19° 57' 42" N and longitude 75° 13' 24" E) near Daulatabad village of Khultabad Taluka in Aurangabad District, 15 km away from Aurangabad city. The Lake has a maximum depth of 8.30 meter. The Lake is situated at foot hills in Daulatabad valley containing grassland mixed with tree vegetation and used for aquaculture.

The Ostracod samples were collected by using plankton net of mesh size 64µ at an interval of 15 days every month for a period of one year (from October 2010 to September 2011) between the time 7 to 8 am. From each lake two duplicates of sample are taken. The collected samples were kept in plastic bottles containing 4% formaldehyde. Both the morphology of soft parts and carapace of the living species were used for identification following systematic keys of Pennak (1978), Edmondson (1992), Meisch (2000) and Altaff (2004). Population density is quantified by drop count method of Lackey (1938) and Tonapi (1980). Microphotography is taken by digital camera using compound microscope (Model No- LABOMED STC-ML).

Population density was calculated using the following formula of Lackey (1938) and Tonapi (1980):

$$N = n \times v / V$$

Where,

N = Total no. of organisms/ lit of water filtered.

n = Number of zooplankton counted in 1 ml plankton sample.

v = Volume of concentrate plankton sample (ml).

V = Volume of total water filtered through (L)

Diversity indices

- *Richness index (Margalef, 1958):*

$$R = S-1 / \ln(n)$$

Where,

R- Richness index

S- Total number of species in a community

- *Simpson index (λ) (1949):*

$$\lambda = \sum (ni / n)^2$$

Where,

λ = Simpson index

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JANS

Diversity of zooplankton in Dekhu reservoir from Aurangabad, Maharashtra

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Abstract: Zooplanktons by their heterotrophic activity play a key role in the cycling of organic materials in aquatic ecosystems and are used as bioindicators of environmental quality. The present study was carried out from February 2009 to January 2010 which deals with diversity and abundance of zooplankton in Dekhu reservoir from Aurangabad district. A total 25 species of zooplankton were recorded in which rotifers were more abundant with 11 species followed by copepods and cladocerans 6 species each and 2 species of Ostracods. Results indicated that Dekhu reservoir is more productive.

Keywords: Dekhu reservoir, Diversity, Zooplankton

INTRODUCTION

For a better understanding of the role of zooplankton as a function of the ecosystem. The seasonal fluctuations of zooplankton populations can be expressed by various quantitative parameters such as population density, biomass and biochemical compounds. According to Riccardi and Mangoni (1999), each parameter emphasizes a certain characteristic, the knowledge of which is essential to evaluate the role of zooplankton in that particular ecosystem. In India, considerable work has been done on ecology and seasonal distribution of zooplankton than other tropical and sub tropical countries (Battish, 1992; Ranga Reddy, 2001; Slathia and Dutta, 2013). Zooplankton by their heterotrophic activity plays a key role in the cycling of organic materials in aquatic ecosystems and are used as bioindicators of environmental quality. The present paper deals with diversity of zooplankton in Dekhu freshwater reservoir from Aurangabad district.

MATERIALS AND METHODS

Dekhu reservoir is located (latitude 20° 6' 19" N and longitude 74° 55' 58" E) near Bhatana village, Tal. Vaijapur in Aurangabad district. This reservoir is mainly used for irrigation and aquaculture. The zooplankton samples were collected twice in month between 7 to 8 am by using plankton net of mesh size 64µ for a period of one year, from February 2009 to January 2010. The collected samples were kept in plastic bottles containing 4% formaldehyde. Zooplankton identification is done by following systematic keys of Pennak (1978),Edmondson (1992), Battish (1992) and Altaff (2004). Main characters are considered for identification are lorica, corona and type of trophi for rotifers; antennules, postabdomen, number and arrangement of spines, location of lateral setae and rostrum for cladocera; antennules, antenna, caudal setae, and endopodite for copepoda and antenna, valve shape and setae for ostracods.

Population density was quantified by Drop count method of Lackey (1938) and was calculated using the following formula of Lackey (1938) :

$$N = n \times v / V$$

Where,

N = Total no. of organisms/ lit of water filtered.
n = Number of zooplankton counted in 1 ml plankton sample,
v = Volume of concentrate plankton sample (ml),
V= Volume of total water filtered through (L)

RESULTS AND DISCUSSION

A total 25 species of zooplankton were recorded from Dekhu reservoir. Among 25 species, Rotifera was dominant with 11 species followed by 6 species of Copepoda, 6 species of Cladocera and 2 species of ostracod (Table 1). Monthly recorded Zooplankton population is depicted in table 2.

Rotifera: Rotifers play a vital role in the trophic tiers of freshwater impoundments and serve as living capsule of nutrition (Suresh Kumar *et al.*, 1999). In the present study they dominated with 11 species as compared to other groups of zooplankton. Taxonomic dominance has been reported in several water bodies (Kudari *et al.*, 2005; Kanagasabhapati and Rajan, 2010). This pattern is common in lakes, ponds, reservoirs and rivers (Neves *et al.*, 2003). The population density of rotifers was rich in summer season (880 org/lit) and less in winter season (366 org/lit). The number of Rotifers increased in summer which may be due to the higher population of bacteria and organic matter of dead and decaying vegetation (Majagi and Vijaykumar, 2009). Segers (2003) highlighted the dominance of rotifer population which

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Seasonal variation in primary productivity of two freshwater lakes of Aurangabad district, Maharashtra, India.

Gajanan K. Sontakke and Satish S. Mokashe

Abstract
Primary productivity gives information related to the amount of energy available to support bioactivities of system. The present study is aimed to know the status of primary productivity of two freshwater lakes namely, Mombatta and Kagzipura. It is determined by using standard 'Light and Dark bottle' method of Garden and Gran (1927) at an interval of 15 days in every month a period of two years (October 2008 to September 2010). Results indicate that Primary productivity of Kagzipura Lake is higher than Mombatta Lake. High productivity of Kagzipura Lake favors better growth of zooplanktons.

Keywords: Primary productivity, Mombatta Lake, Kagzipura Lake.

1. Introduction
The flow of energy through any ecosystem starts with the fixation of sunlight by plants and other autotrophic organisms. In this way the plants accumulate which is called primary production. The rate at which this energy accumulates is called primary productivity. The total energy accumulated is gross primary production; however, since plants use some of this energy themselves, it is not available for the food web [20]. Estimation of primary productivity is essential to understand food chain and food web [3], water quality [19] and pollution study [13]. The primary productivity of the aquatic ecosystem is adversely affected by anthropogenic activity. The overall productivity of a water body can easily be deduced from its primary productivity, which forms the backbone of the aquatic food chain Ahmed SH [1] *et al.* It gives information related to support bioactivities of the system. According to Odum and Barrett [11] the primary productivity of an ecosystem is the rate at which radiant energy is converted to organic substances by the photosynthetic and chemosynthetic activity of the producer organisms. The aquatic resources have been till date the potential source of organic production for the entire living organisms. Many ecologists of the world have laid emphasis on the importance of the primary productivity as an important functional attribute of the biosphere because of its controlling effects on the rate of multiplication and growth of the living organisms of the ecosystem [18]. Primary productivity of aquatic ecosystem has been measured by several workers [2, 8, 12, 16]. The present study has been undertaken to analyze the seasonal variations of Primary productivity in two freshwater lakes, namely Mombatta and Kagzipura.

2. Materials and Methods
2.1 Study area: - Kagzipura lake (latitude 19°57'N and longitude 75°15'E) is located near Kagzipura village, Tal. Khultabad 16 km away from Aurangabad city whereas Mombatta lake is situated in Daulatabad valley (Latitude 19°57'N and longitude 75°13'24"E) near Daulatabad village, Tal. Aurangabad. Both lakes are used for irrigation and aquaculture purposes.
The primary productivity is determined by using standard "light and dark bottle" method of [7] at an interval of 15 days in every month for a period of two years from October 2008 to September 2010. The method of Gardner T [7] *et al.* is slightly modified by Vollenweider RA [17] and Wetzel RD [19] *et al.* to make it more suitable. The time of exposure (incubation period) in the present study was for the period of 2 hours. The dissolved oxygen is estimated by initial bottle and light and dark bottle method of Winkler [19]. The observed Gross Primary Productivity (GPP), Net Primary Productivity (NPP) and Community Respiration (CR) in mg/l/hr were converted into $gC/m^3/hr$ by multiplying these values with a factor of 0.375 as

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Research Article

INORGANIC STATUS OF TUBERS OF *HABENARIA LONGICORNICULATA* J.GRAHAM

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ABSTRACT

Habenaria longicorniculata J.Graham is distributed throughout Western Ghats of peninsular India and Srilanka. Tubers of this terrestrial orchid are used as folk remedy and also eaten by some local tribes. Hence an attempt is done to evaluate mineral composition of this orchid. Mineral analysis was done by following standard method of acid digestion. In present study fourteen minerals are analysed for their content in tubers. Phosphorus is present in higher amount as compare to other minerals while Magnesium is lowest In case of trace elements Ferrous is found to be higher and Molybdenum is found to be low in quantity. Present study reveals that tubers of this orchid are good source of minerals and they can be used in food preparation by proper processing, results proves that undoubtedly it's a folk medicine. Further study on this and other orchids needs to be carried out to know the full potential in regards of its medicinal value

Keywords: Habenaria, folk medicine, minerals, orchidaceae.

INTRODUCTION

Being one of the largest families of the flowering plants, Orchidaceae constitutes about 7% species of all Angiosperms and nearly 40% of monocotyledons. It is one of the largest and most diversified families of Angiosperms represented by 25,000 to 35,000 species belonging to 600-800 genera distributed in all parts of the world except, in the Antarctica [1-2]. India represents about 1,141 species belonging to 140 genera of orchids with Himalayas as their main home [3].Mostly grown for ornamental and commercial purpose but they are neglected or less importance is given towards their medicinal value. A lot of research on medicinal properties of Vanda has been carried out for medicinal value but unfortunately many orchids escape from the attention of researchers due to their short life cycle and many other factors. There is need in plant medicine research especially in orchids as this is a very huge but much neglected group. Many local tribes use various orchids and their parts as folk remedy to cure various diseases, especially tubers of terrestrial orchids. This knowledge of local tribes may help in developing or finding new drug in medicine and studies on the folk medicines may reduce rate of loss of orchids from nature. By keeping this view, present study is carried out on an interesting and beautiful terrestrial orchid *Habenaria longicorniculata* J.Graham, tubers of which are used in folk medicine.

Genus *Habenaria* Willd. of family Orchidaceae contains mainly terrestrial or lithophytic, rarely epiphytic, tuberous and herbaceous species is represented by about 800 species distributed throughout the world especially tropical and temperate regions of the world. In India it is represented by 72 species including 38 endemic ones. For Western Ghats it is represented by 43 species with 28 endemic species [3]. *Habenaria longicorniculata* J.Graham is the only species among genus *Habenaria* having longest tube like slender nectariferous spur ca.12-20 cm. in length (Fig.1a & b). It is endemic to Western Ghats and characterised by its height, upto 70-80 cm, white colour flowers, long spur, and sweet scent during night time. This terrestrial orchid perpetuate through tubers, having a shape globose to sub-globose with several slender roots (Fig.1c). Since these tubers are used directly or indirectly or used with other plant materials for remedial purpose hence an attempt is carried out to know the mineral content of this tuber.

MATERIALS AND METHODS

Fresh Tubers of *H. longicorniculata* J.Graham were collected from various localities of Kolhapur district in the month of mid September. they were washed with tap water followed by distilled water, blotted well on blotting paper and used for mineral analysis.For acid digestion each tuber was cut into small pieces and dried at 60°C for about 30 days. Dried tuber pieces were crushed in mortar with the help of pestle and dry powder was used for further analysis. Mineral analysis was done by following acid digestion method[4]. Sodium and Potassium were estimated by flame photometrically following the standard method of flame photometer (Model- Elico, cb-22A). remaining inorganic elements viz. Calcium, Potassium, Magnesium, Iron, Manganese, Zinc, Copper and Cobalt were estimated by using Atomic absorption spectrophotometer (Perkin-Elmer, 3030 A).Total nitrogen content and phosphorus was estimated by following Hawk et al. (1948) and Sekine et al. (1965) method respectively[5-6].

RESULTS AND DISCUSSIONS

Total 14 mineral elements were analysed out of which, major element Phosphorus was highest i.e. 48.65 ± 1.36 % as compared to others, while Magnesium is lowest i.e. 0.02 ± 0.005 %. In minor elements Ferrous shows highest amount i.e.106.48±1.43 PPM while Molybdenum is present lowest as comapre to other mineral elements i.e 0.06 ± 0.02 PPM.

Table 1: Mineral composition of tubers of *Habenaria longicorniculata* J.Graham

Sr. No.	Parameters	Analysis
1.	Nitrogen %	2.71 ± 0.33
2.	Nitrate N %	0.05 ± 0.01
3.	Phosphorus %	48.65 ± 1.36
4.	Potassium %	1.16 ± 0.06
5.	Calcium %	1.49 ± 0.05
6.	Magnesium %	0.02 ± 0.005
7.	Sulphur %	0.11 ± 0.01
8.	Sodium %	0.53 ± 0.05
9.	Zinc PPM	18.73 ± 1.28
10.	Ferrous PPM	106.48±1.43
11.	Copper PPM	0.09 ± 0.01
12	Mangenese PPM	0.08 ± 0.02
13.	Molybdenum PPM	0.06 ± 0.02
14.	Boron PPM	7.69 ± 0.33

Mean ± Standard Deviation (SD), triplicates determinations.

Present study reveals that tuber of this orchid are good source of minerals and they can be used in food preparation by proper processing, results proves that undoubtedly it's a folk medicine.

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Original Article

Two new Smuts for India

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Abstract

Present paper describes *Sporisorium normanensis* R. G. Shivas & K. Vanky on *Cynodon dactylon* (L.) Pers. & *Tilletia setariae - parviflorae* K.Vanky & R.G. Shivas (Ustilagino-mycetes) on *Setaria tomentosa* (Roxb.) Kunth. (= *Setaria intermedia* (Roth.) R.and S.) for the first time from two different localities in Maharashtra state, India.

Key words: India, *Cynodon, Setaria, Sporisorium, Tilletia,* taxonomy, Ustilaginomycetes.

Introduction

Sporisorium normanensis R.G. Shivas and K. Vanky was collected from Panchgani (Dist. Satara, Maharashtra, India) and *Tilletia setariae- parviflorae* K.Vanky & R.G. Shivas was collected from Malegaon (Dist. Nasik, M.S.) on *Cynodon dactylon* (L.) Pers. and *Setaria tomentosa* (Roxb.) Kunth. respectively. Morphological characters of both the smuts was studied with the help of keys provided by Vanky and Shivas [1, 2] for *Cynodon* and *Setaria* species. The two species are new records to fungi of India. The material has been deposited in National Fungal Culture Collection of India (NFCCI), ARI, Pune, Maharashtra, India.

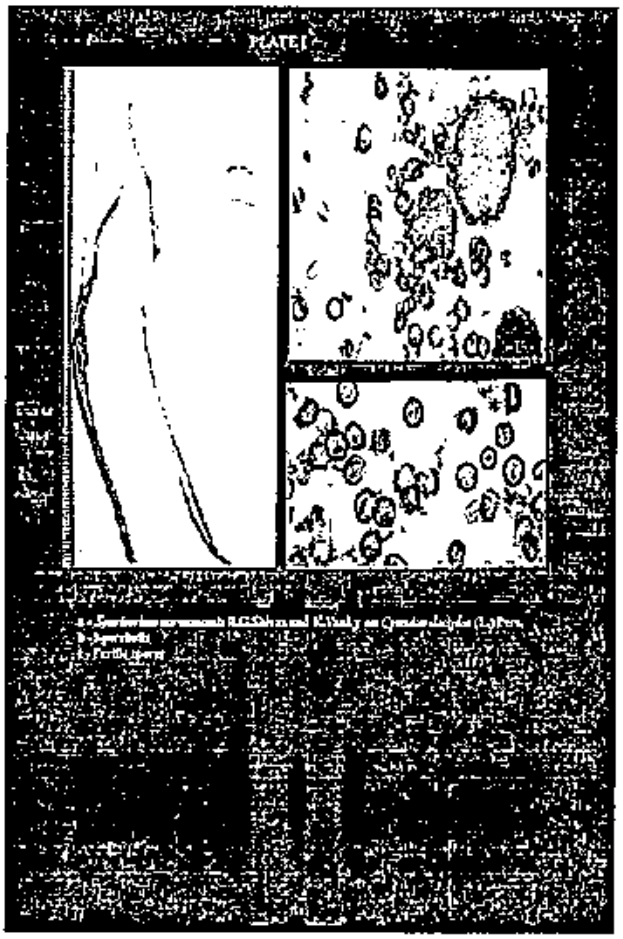
Sporisorium normanensis R.G. Shivas and K. Vanky; *Fungal Diversity* 8: 150-152, 2001. Plate no I, a-c.

Habit: In the entire inflorescence of *Cynodon dactylon* (L.) Pers., Pachgani (District Satara, Maharashtra, India), 22/6/2011, Dr.A.R. Patil, deposited in NFCCI, ARI, Pune, Maharashtra, India as AMH no.9565.

Seven smuts are reported on *Cynodon* belonging to the genera viz. *Tilletia* (1spp.), *Sporisorium* (2spp.) and *Ustilago* (4sp.) from Ethiopia, Queensland, Philippines and Paraguay. Morphological key to the species has been provided by Shivas and Vanky [1]. The present collection shows presence of columella, spore balls and teliospores measuring 7-13mμ in diameter with few sterile cells, thus matches well to *Sporisorium normanensis* R.G. Shivas and K. Vanky. The species is also recorded on the same host *Cynodon dactylon* (L.) Pers. It is a new record to fungi of India.

Tilletia setariae- parviflorae K.Vanky and R.G. Shivas, *Mycotaxon* 99:211-217. 2007;

Plate II. a-c



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Full Length Article

Cordyceps natans Pat., a New Record to India

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ABSTRACT

Genus *Cordyceps* comprises of more than 100 species. Most of them are entomogenous. In India only 06 species have been reported till date of which four occur in Maharashtra state viz. *Cordyceps blattae* (T.Petch) T.Petch, *C. superficialis* (Peck) Sacc., *C. militaris* (Lex St.Amans) and *C. forquignoni* Quel. In the present paper *Cordyceps natans* Pat., an entomogenous species has been described as a new record to India.

Key words: Mycotaxonomy, Entomogenous, *Cordyceps*

INTRODUCTION

Genus *Cordyceps* comprises of more than 100 species (Ove Erikson, 1982). Kobayasi (1941) listed 124 species from the world. Most of them are entomogenous, a few are epiparasites on *Elaphomyces* species, two on sclerotia of *Claviceps* species and some occur on Spiders (Mains, 1955). Most species develop on larva, pupa and adults of insects. Ascal apparatus and ascospores is a typical character of family and order Clavicipitales. In India only 06 species have been reported till date (Bilgrami *et al.*, 1991; Sarbhoy, 1996). Four species have been reported from Maharashtra state viz. *Cordyceps blattae* (T. Petch) T. Petch, *C. superficialis* (Peck) Sacc., *C. militaris* (L.ex St.Amans) and *C. forquignoni* Quel (Patil, M.S., Jagdale, S.V., Nanaware, 2002; Mahamulkar, 2001 and Anjali Patil and Patil, 2008).

During the systematic mycological survey in different botanically rich localities confined to the Western Ghats of Maharashtra State in the rainy season of 2011 and 2012, many rare & interesting saprophytic, parasitic & hyper parasitic fungi were collected. Among these *Cordyceps*, an entomogenous taxon has been collected & described. The material is deposited in National Fungal Culture Collection of India, Agharkar Research Institute, Pune, Maharashtra, India.

***Cordyceps natans* Pat. *Bull. Soc. Mycol. Fr.* 3: 127, 1987. Plate I: Figs. a -e.**

= *C. natans* Pat. var. *acanthosomae* Hara, *Nawas Insect World* 15: 26, 1911.

Stromata solitary or tri-ternate, simple, rarely terminally branched, erect, sometimes curved & coiled, varying from 1- 4 per body of the insects (1 & 2 stromata per body dominant), stalks filiform, blackish with orange-yellow apex; surface glabrous, 5 -18 cm long, 1.5 - 4 mm thick; terminal fertile part fusiform or clavate, orange-yellow, 4 -12 x 1.5 - 4 mm; perithecia embedded in the stroma, elongate, ovate, with long neck, 450 - 800 x 150 – 250 µm; asci numerous, tenuous, clavate or cylindrical, apically capitate& 8-spored ; ascospores parallel, cylindrical-filiform, hyaline, septate, smooth & not divided into part spores (immature), 200 - 250 x 1.5 -2 µm.

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Original Article

MINERAL ANALYSIS OF *AVERRHOA BILIMBI* L. – A POTENTIAL FRUIT

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ABSTRACT

Averrhoa bilimbi L. (Oxalidaceae) is widely distributed and cultivated throughout tropical countries for its fruits. Parts such as leaves, bark, fruits are widely used in medicine as a folk remedy for many symptoms. This study provides morphological and biochemical characteristics of half-ripen bilimbi fruits. During present study physical and chemical properties of Bilimbi fruits were studied at half-ripen stage for potential benefits based on its mineral content. Phosphorus content of the fruits was higher at half-ripen stage i.e. 39 ± 1.7%, while in case of minor elements, Molybdenum is present in least amount i.e. 0.04 ± 0.05 ppm. This Chemical studies reveals that the fruit is good source of minerals such as Potassium, Phosphorus, Nitrogen, Calcium, Magnesium and Iron suggesting its use as a potential fruit.

Keywords: *Averrhoa*, Bilimbi, Mineral analysis, Oxalidaceae.

INTRODUCTION

Plants are the main source of drugs that being used from the ancient times as herbal remedies for the health care, prevention and cure of various diseases and ailments [1]. *Averrhoa bilimbi* L. of family oxalidaceae, widely cultivated throughout tropical countries for their fruits as these fruits are nutritionally rich. It is commonly called as Bilimbi and medicinally used as a folk remedy for many symptoms. There are many uses in traditional medicine such as fruit conserves or syrups are used for coughs, fevers, and inflammation. Young fruits are waxy shining and green, while mature are yellowish in colour. Fruits are ellipsoid, obovoid or nearly cylindrical, lobed in structure having 4-5 ridges. The size ranges from 5.5 - 7 cm long and upto 2-3 cm in diameter. On an average 7 seeds are present in a fruit. Flowering in Bilimbi starts around mid February to late March and fruiting lasts upto late December to early January. Fruit taste is sour due to high content of oxalic acid, rich in vitamin C, with high level of antioxidants. They are eaten as raw or used in pickles, curries, chutney, and preserves in various dishes. Floral morphological features and variability in two species of *Averrhoa* viz. *A. bilimbi* L. and *A. carambola* L. has been studied [2], while a review to provide an updated categorization of the phytochemical constituents along with the comprehensive list of known ethanobotnical uses common names and a brief summary of relevent pharmacologient activites of *Averrhoa carambola* Linn. has been done [3]. *Averrhoa bilimbi* is a potent plant for future research since it has antidiabetic, anthypertipidaemic and antibacterial properties [4].

Hence, by keeping this view present study is aimed at determining the physical features and mineral composition of half ripen green fruits of Bilimbi.

MATERIALS AND METHODS

Ten half ripen healthy fruits of *Averrhoa* (bilimbi) were collected during fruiting season from the Botanical garden, Shivaji University, Kolhapur. These fruits were washed thrice under tap water followed by distilled water. Physical features, such as size, colour and weight of fruits size, number and weight of seed; size and number of ridges; fresh and dry weight; pH were recorded. For acid digestion each fruit was cut into small pieces and dried at 60°C for about 15 days. Dried fruit pieces were crushed in mortar with the help of pestle and dry powder was stored in airtight containers for further analysis. For mineral analysis acid digestion method has been followed [5]. Sodium and Potassium were estimated by flame photometrically following the standard method of flame photometer (Model- Elico, ch-22A), remaining inorganic elements viz. Calcium, Potassium, Magnesium, Iron, Manganese, Zinc, Copper and Cobalt were estimated by using Atomic absorption spectrophotometer (Perkin-Elmer, 3030 A).

RESULTS AND DISCUSSION

Morphometric studies

Studies on morphological features such as colour, length, width, volume, weight, moisture and number of seeds, ridges of fruits and biochemical characteristics undows *Averrhoa* fruits as a potential fruit having good amount of antioxidant and minerals (Fig. 1 & Table 1). Data proves that half ripen *Averrhoa* fruits are ideal in fruit diet. Mean length of fruit is 6.1 ± 0.38 cm and diameter is 2.1 ± 0.16 cm, while 5 ridges are present per fruit. Number of seeds present per fruit varies greatly, during present studies a mean 7.7 ± 2.45 seeds were found to be present per fruit. Weight of fresh fruit varies greatly with its size, however mean fruit weight is 18.6 ± 2.17 gm, while mean seed weight is 0.16 ± 0.08 gm. Fresh fruits shows 96.9 ± 0.06 % moisture content and pH of the fresh fruit pulp is 2.31 ± 0.2 i.e. acidic due to high oxalic acid content.

Table 1: Physical features of mature fruits of *Averrhoa bilimbi* L.

Sr. No.	Parameters studied	Analysis
01	Length of fruit (cm)	6.1 ± 0.38
02	Diameter of fruit (cm)	2.1 ± 0.16
03	Length/diameter ratio	2.9 ± 0.32
04	Number of ridges	5.0 ± 0.0
05	Length of ridges (cm)	5.7 ± 0.32
05	Width of ridges (cm)	0.4 ± 0.05
06	Weight of fruit (g)	18.6 ± 2.17
07	Moisture Content of fruit (%)	96.9 ± 0.06
08	Dry weight of fruit (g)	0.55 ± 0.05
09	Number of seeds/ fruit	7.7 ± 2.45
10	Weight of seeds(g)	0.16 ± 0.08

(n=10; mean ± SD)

Mineral composition

Table 2 shows the mineral constituents of half ripen *Averrhoa bilimbi* fruits. Nitrogen, nitrate, phosphorous, potassium, calcium, magnesium, sulphur and sodium were found to be major minerals

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CHANGES IN THE TITRATABLE ACID NUMBER DURING LEAF SENESCENCE IN SERICULTURAL CROP MORUS ALBA LINN.

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ABSTRACT

Attempt has been made to study changes in the titratable acid number (TAN) during leaf senescence in mulberry (*Morus alba* Linn.). The changes in titratable acid number (TAN) of young, mature and senescent leaves of mulberry cultivars *viz.* M5 (K2), V1 and S36. TAN values are considerably low as compared to the mature and young leaves. Young leaves of all the three cultivars have highest organic acid level among the three leaf categories. The decrease of organic acid content during senescence is more prominent in case of leaves of cultivar M5 (K2). Thus, presence of titratable acid number in leaves may affect silkworms.

Figure:01 Table:00 References:20
KEY WORDS: Titratable Acid Number, *Morus alba* Linn.

Introduction

Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* L.[20]. Cocoon production depends mainly on nutrient composition of mulberry leaves[1]. Health and growth of the larvae, cocoon quality and raw silk quality are influenced by quality of leaf. Since, the physiological status of mulberry leaf is important in determining the nutritional quality; the age of leaf may influence silkworm feeding. A worker[3] suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. During present study, titratable acid number (TAN) of young, mature and senescent leaves from three cultivars of mulberry (*viz.* M5, V1 and S36) studied has been compared.

Material and Methods

Titratable Acid Number represents the number of ml of decinormal NaOH required to neutralize the acids present in 100g fresh tissue. The method[17] was employed for determination of TAN. Fresh leaves (Young, mature and senescent) of the three mulberry cultivars *viz.* M5 (K2), V1 and S36 were collected from the field grown plants. They were washed with distilled water and blotted to dryness and cut into small segments. Two gram of plant material was transferred to a beaker containing 50 ml D.W. and boiled for about half an hour. After cooling, the extract filtered through cheese cloth and volume was made to 50 ml with distilled water. The filtrate was then titrated against standardized NaOH (N/40) using 3 drops of phenolphthalein as an indicator. NaOH was standardized again with oxalic acid (N/40) using 3 drops of phenolphthalein as an indicator.

TAN value was calculated using the following formula,

$$TAN = \frac{\text{Volume of oxalic acid taken for titration (ml)}}{\text{Titration reading (ml)}} \times \frac{\text{Total volume of extract (ml)}}{\text{Wt. of plant material (g)}} \times \frac{\text{Extract titration reading (ml)}}{\text{Volume of extract taken for titration (ml)}} \times \frac{100}{4}$$

Result and Discussion

It is evident from the figure that, in senescent leaves of all three cultivars, the TAN values are considerably low as compared to the matured and young leaves. Young leaves of all the three cultivars, have highest organic acid level among three leaf categories. The decrease of organic acid content during senescence is more prominent in case of leaves of cultivar M5 (K2).

It has been proposed that accumulation of organic acids in plant is relevant to the adjustment of cation-anion balance in plant sap and to facilitate the transport of metabolic cations in plant[12, 19]. In some plant parts like *Tamarindus* fruits, there is accumulation of tartaric acid. There are several plant species which accumulate oxalic acid in their leaf tissue. In CAM plants, CO_2 fixation occurs during night hours and the synthesized malic acid accumulates in vacuole which is decarboxylated during day time. In C_4 plants, such as sugarcane, malic acid is among the initial products of photosynthetic CO_2 fixation. From the leaves of legume crop chickpea considerable amount of malic acid is exuded and this exudation may be contributing to disease resistance. The maintenance of cation-anion balance within the cell is very

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Effect of chloro choline chloride on photosynthetic pigments during senescence of detached leaf segments of *Morus alba* Linn.

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ABSTRACT

An attempt has been made to study the effect of Chloro Choline Chloride (CCC) during leaf senescence in three improved cultivars of Mulberry (*Morus alba* Linn.) viz. MS, V1 and S36. The leaf senescence was found to be accompanied with chloro choline chloride is very effective in maintaining chlorophylls as well as carotenoids. Effect of Chloro choline chloride on the level of chlorophylls and carotenoids in detached leaf segments of mulberry varieties is depicted. It is evident from the figure that CCC is highly effective in maintaining chlorophyll level in case of variety MS (K2) and S36. In case of variety V1 such effect is slightly noticeable only at the concentrations 10 and 25 ppm of CCC.

Key Words: Chloro Choline Chloride (CCC) and *Morus alba* Linn.

INTRODUCTION

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry leaves are used as food for rearing monophagous silkworm (Bombyx mori L) (Ullal and Narasimhanna, 1981). Mulberry leaf is used as food for rearing of silkworms, larvae growth and development of silkworm and subsequent cocoon production depends mainly on the nutrient composition of mulberry leaves (Krishnaswami et al., 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving verities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997).

Since, the physiological status of mulberry leaf is important in determining the nutritional quality of mulberry leaf, the age of leaf would have a tremendous influence on silkworm feeding. Ganga (2003), stated that, due to low protein level, declining (i.e. over mature, yellowing) leaves should be discarded. But at the same time there are several reports which indicate

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Magnetoelectric and magnetodielectric effect in BST–LSMO ferromagnetic/ferroelectric composites

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Description	$Ba_{1-x}Sr_xTiO_3$ (BST) for x = 0.20, 0.25 and 0.30 and $La_{0.67}Sr_{0.33}MnO_3$ (LSMO) are synthesized using hydroxide co-precipitation route to lead to nanocrystalline particles of BST and LSMO respectively. Further the magnetoelectric (ME) and magnetodielectric (MD) composites of BST0.20, BST0.25 and BST0.30 are formed by addition of the LSMO at y = 0.1 and y = 0.2. The parent BST compositions are studied for its dielectric properties as a function of temperature and frequency up to 1 MHz. The AC conductivity of LSMO–BST (LBST) is studied and it confirms the conduction to be due to small polarons. The paper also presents ME and MD properties of LBST composites. The observation on MD properties show that the dielectric constant possesses

$SrTiO_3/Ba(Zr_{0.3}Ti_{0.7})O_3$ thin film heterostructures
AN Tarale, MM Sutar, DJ Salunkhe, PB Joshi, SB Kulkarni, RC Pawar, ...
Journal of Materials Science: Materials in Electronics 24 (4), 1308-1318

EFFECT OF MN DOPING LEVEL ON MAGNETIC PROPERTIES OF Ni SUBSTITUTED COBALT FERRITE — 2013
MM SUTAR, JS GHODAKE, SR KOKARE, PB JOSHI
Ashok Yakkaldevi

Magnetoelectric and magnetodielectric effect in CFMO-PBT nanocomposites — 12 — 2013
SM Salunkhe, SR Jigajeni, MM Sutar, AN Tarale, PB Joshi
Journal of Physics and Chemistry of Solids 74 (3), 388-394

Magnetic Properties of Nanocrystalline NiCoZn Ferrite Synthesized By Citrate-Nitrate Combustion Method — 2013
JS Ghodake, SA Ghodake, MM Sutar, SS Suryavanshi
Ashok Yakkaldevi

Investigation on magnetoelectric and dielectric properties of Co^ sub 0.9^ — 2012

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याप्रसगी अड. सुहासराव तिडके अध्यक्ष, महाराष्ट्र राज्य सहकारी संघ मर्यादित, पुणे
मार्गदर्शन करीत असताना.

(पृत्त पान नं. २७ वर)

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"लोकसंख्यावाढ आणि वातावरणातील बदल"

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श्रीमती मीनलबेन महेता कॉलेज ऑफ आर्टस
ॲण्ड कॉमर्स, पांचगणी, ता. महाबळेश्वर, जि. सातारा

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डॉ. पतंगराव कदम आर्टस् ॲण्ड कॉमर्स कॉलेज,
पेण, ता. पेण, जि. रायगड

प्रस्तावना :

देशाचा सर्वांगीण विकास हा त्या देशातील लोकांकडून होत असतो. नैसर्गिक साधनसंपत्ती ज्या प्रमाणात असेल त्या प्रमाणात लोकसंख्या असेल तर राष्ट्राची प्रगती कोणीही थांबवू शकत नाही. उद्योग व्यवसायात कृषी, खनिज कार्यात, मासेमारी, जंगल उत्पादनात, दळणवळण व्यवस्थेत जिथे चांगल्या पध्दतीने श्रम विभाजन होईल तितके उत्पादन वाढते. अशा सर्वव्यापक व सर्वसमावेशक श्रमविभाजनाकरिता देशात एक किमान लोकसंख्येची आवश्यकता असते. मात्र केवळ लोकसंख्येने आर्थिक विकास साधता येत नाही त्यासाठी देशातील लोक सुध्दा अतिशय उद्योगी आणि कार्यमग्न असले पाहिजेत. लोकसंख्या वेसूमारपणे वाढत आहे त्यामुळे अनेक अनुत्तरीत प्रश्न जगासमोर निर्माण झाले आहेत. पृथ्वीतलावर लोकांची आणि वाहनांची संख्या एवढी वाढली आहे की त्यामुळे मानवानेच मानवाचे जीवन धोक्यात आणले आहे.

इंग्लंडमधील "ऑप्टीमम पॉप्युलेशन ट्रस्ट" ही संस्था लोकसंख्येवर कार्य करते. या संस्थेमार्फत असे जाहीर करण्यात आले आहे की पृथ्वी 300 कोटी लोकसंख्येचा भार उचलू शकते आणि एवढी लोकसंख्या पृथ्वीतलावर सुखासमाधानाने राहू शकते. परंतु आज जगाची लोकसंख्या 600 कोटीपेक्षा जास्त झाली आहे. त्यामुळे संपूर्ण पृथ्वीच संकटात सापडली आहे. मानवाने नैसर्गिक साधनसंपत्तीचा गरजेपेक्षा जास्तच फायदा घेतला आहे. आज जागतिक स्तरावर उष्णताशोषक वायूंचे वातावरणातील प्रमाण प्रचंड प्रमाणात वाढवत आहे. त्यामुळे बदलणारी हवा, ऋतूमानात पडत असलेला फरक, हवा आणि पाणी यामधील प्रदुषण यामुळे अनेक प्रश्न समोर येत आहेत. लोकसंख्येचा आकडा जसजसा मोठ्या प्रमाणात फुगत जाणारा आहे तसतसा वातावरणातील फरकाचा बसणारा तडाखा अधिक तीव्र होत आहे. वाढती लोकसंख्या आणि वातावरणातील टाकले जाणारे उष्णताशोषक वायू कार्बनडाय ऑक्साईड आणि मिथेन वायू याचा सुगंध एवढा जवळचा आहे की लोकसंख्येच्या वाढत्या वेगावरोबर हवामानात होणाऱ्या बदलाचे स्वरुप अधिक तीव्र होत आहे. मानवाने नैसर्गिक साधनसंपत्तीवर सरळ मार्गाने पर्याप्त वापर केला नाही. संपत्तीचा अतिरेकी वापर होत आहे. या वापरामुळे वातावरणातील समतोल पूर्णपणे ढासळला आहे.

लोकसंख्यावाढीचे परिणाम :

लोकसंख्या वाढीमुळे जमीन, पाणी, आकाश, पाताळ, अन्न, वस्त्र आणि नैसर्गिक साधने या सर्व बाबींचा अतोनात तूटवडा भासत आहे म्हणूनच मानव आता जंगलाच्या पाठीमागे लागला आहे. जंगल आणि डोंगरदऱ्या नष्ट करून महाकाय उंचीचे टॉवर उभे राहू लागले आहेत. अवकाश रेषा विद्रुप करणारे क्षितीज झाकोळून टाकणारे विस्तार होऊ लागले आहेत. कोणत्याही गावातील अथवा शहरातील लोकसंख्या सतत वाढत असते. तेव्हा त्या नागरी सुविधांवर प्रचंड प्रमाणात ताण येत आहे. सर्वात जास्त पाणी आणि वीज या दोन बाबींवर त्याचा विपरीत परिणाम होत आहे. पायाभूत सुविधांचा प्रश्न निर्माण होऊन ताण वाढत आहे. जिथे दोन लोक राहू शकतात तिथे दहा लोक एकत्र राहतात. त्यामुळे सांडपाण्याचा निचरा आणि कचऱ्याची समस्या अधिक तीव्र बनली आहे. त्यामुळे शहरातील दुर्गंधी वाढली आहे. लोकांच्या संख्येवरोबर वाहनांची संख्या वाढून धुरामुळे प्रदूषण वाढून हवामानात बदल झाला आहे.

लोकसंख्यावाढ, शहरीकरण आणि वातावरणातील बदल :

लोकसंख्या वाढीमुळे प्रत्येक व्यक्तीमागील उपलब्ध असलेल्या जागेत घट निर्माण झाल्याने जमिनीच्या किंमती प्रचंड प्रमाणात वाढल्या आहेत.

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Golden Research Thoughts

ABSTRACT:-

Educational facilities or the economic benefits in India have not reached up to the mark to all sectors of the society. During last two decades environmental problems have attracted the attention of wide cross- section of the people all over the world. Almost all the countries over the globe are facing the environmental problems due to act of the man himself. Environmental pose a challenge to humanity which are unprecedented in its change and complicity. Empowerment is a term widely used in the context of development; particularly women's development. The core element of empowerment is power. Empowerment broadly refers to the expansion of choice and action to shape one's, life. It implies control over resources and decisions. Empowerment, in a nutshell, is a way of defining,

challenges and overcoming barrier in ones life through which an individual increases his or her ability to shape his or her life and environment. Empowerment o women is a global issue. To empower women, literally speaking is to give power to women. Education is important for every one and it is most significant for girls and women's. The role of universities and colleges in rural areas is crucial in protecting the environment. If we empower rural women through our college students potential they will make awarded generation of rural India.

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ORIGINAL ARTICLE

EMPOWERING RURAL WOMEN'S FOR ENVIORNMENTAL AWARENESS AND CONSERVATION

Sanjay S. Sathe[1], R. M. Ganeshwade [2] and M. K. Patil [3]

[1,2] P. D. Vasantraodada Patil Mahaviddyalaya, Tasgaon.(Sangli)
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Abstract :-

Educational facilities or the economic benefits in India have not reached up to the mark to all sectors of the society. During last two decades environmental problems have attracted the attention of wide cross- section of the people all over the world. Almost all the countries over the globe are facing the environmental problems due to act of the man himself. Environmental pose a challenge to humanity which are unprecedented in its change and complicity. Empowerment is a term widely used in the context of development; particularly women's development. The core element of empowerment is power. Empowerment broadly refers to the expansion of choice and action to shape one's, life. It implies control over resources and decisions. Empowerment, in a nutshell, is a way of defining, challenges and overcoming barriers in ones life through which an individual increases his or her ability to shape his or her life and environment. Empowernent of women is a global issue. To empower women, literally speakdng is to give power to women. Education is important for every one and it is most significant for girls and women's. The role of universities and colleges in rural areas is crucial in protecting the environment. If we empower rural women through our college students potential they will make awarded generation of rural India.

KEYWORDS: *Empowerment- women, Environmental awareness.*

INTRODUCTION:

Educational facilities or the economic benefits in India have not reached up to the mark to all sectors of the society .Knowledge is not important and appropriate for the members of the socio-economically weaker section .these section of our population are not aware of the number of things like deforestation, loss of soil fertility, environmental pollution and so on.(Sungoh,2005)

During last two decades environmental problems have attracted the attention of wide cross-section of the people all over the world. T he people are becoming increasing conscious of a variety of serious problem like global warming, ozone layer depletion, acid rains, famines, droughts, floods, scarcity of fuel, food, firewood and fodder and pollution which have created adverse effects on the surrounding environment. Almost all the countries over the globe are facing the above mentioned problems due to act of the man himself.

Environmental pose a challenge to humanity which are unprecedented in its change and complicity. There is presently hue and cry every where to protect and conserve the environment from its deteorating condition. The deteoriation of the environment is due to many reasons and one of the most

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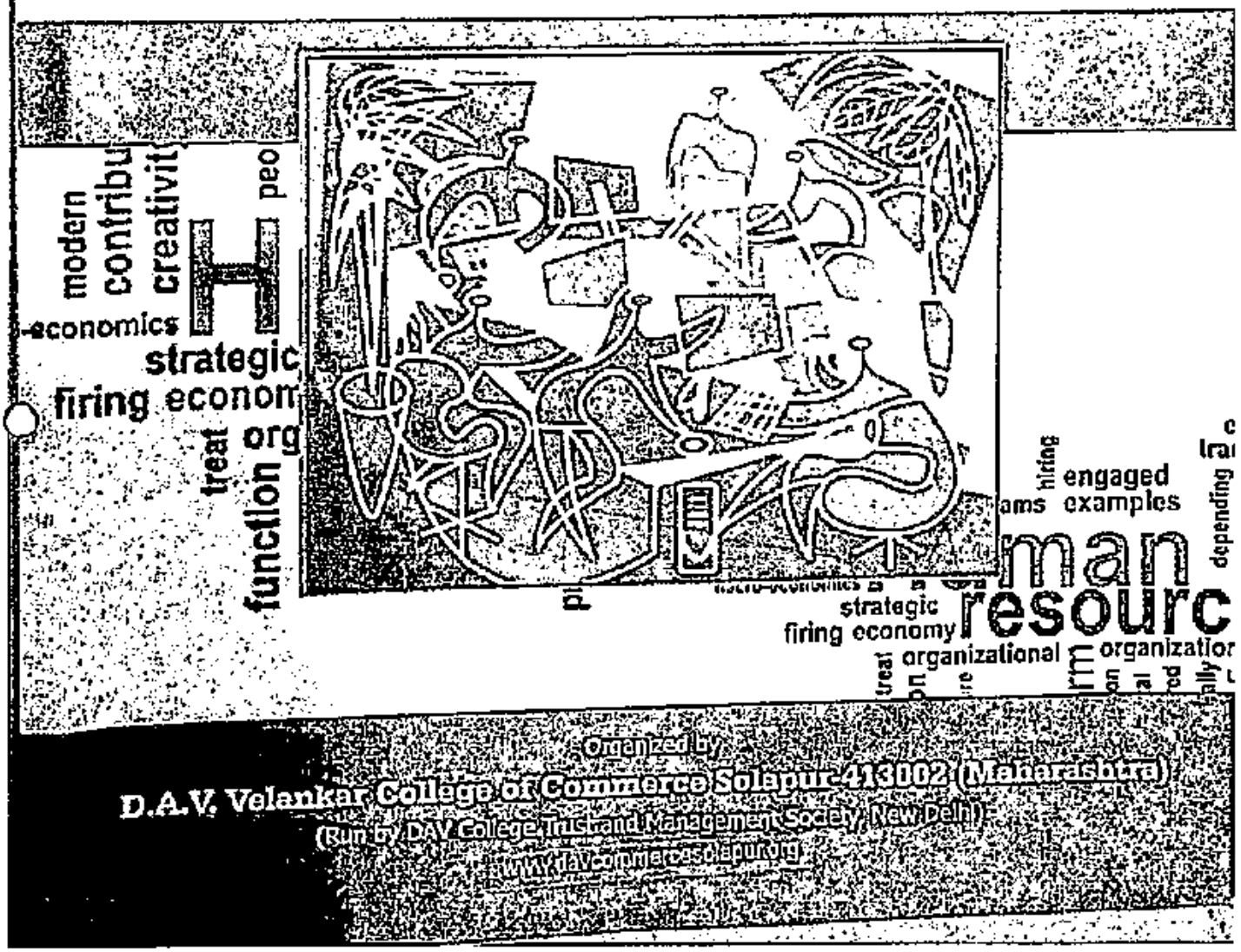

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HUMEN RESOURCE DEVELOPMENT IN THE GLOBAL CONTEXT

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Dr. Ranjan Fatmkhan Mujawar, Assistant Prof., Dept. of Economics, M.M. College of Arts and Commerce, Panchgam
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I Introduction:

In today's world human being is viewed as a human resource and the globalization has made the world a global village Naturally the concept of human development has received multiple dimensions Previously human development was measured simply in the income or growth figures. But the changed approach views human development as to develop the abilities and competency of human beings and thereby strengthening the nation and the world. Broadly it can be said that human development is to create an environment in which people can develop their full potential and lead productive creative lives in accordance with their needs and interests. Trained manpower is the asset of any nation. The most basic capabilities for human development are to lead long and healthy lives, to be knowledgeable, to have access to the resources and social services, needed for decent standard of living and be able to participate in the life of community

The human development is mainly considered as increasing the abilities of each and every human being as per his/her potential, situation and choice. The human development in turn strengthens nation and contributes to the world development at social, cultural and economic level. Viewing Indian situation from this point there is ample scope in various sectors for increasing human development in India. India is very rich in manpower due to increasing population and also being agricultural based country there is tremendous scope in various sectors to turn unskilled man power in skilled ones and thus can play a key role in strengthening nation and world

Women are the greatest human resource and have tremendous productive capability. If the aptitude of women is realized, abilities are trained women have ability to change global economy. In rural areas unskilled women can be turned into skilled ones if opportunities are provided. Sectors of development like food and means fund, training programmes are devised to empower them Trained and skilled man-power in India will build highly developed India and This India will surely play a key role to build the developed world.

People are the wealth of nation. In today's world human being is viewed as a human resource and the globalization has made the world a global village. Naturally the concept of human development has received multiple dimensions Viewed from different angles, it is beneficial to explore these multiple dimensions for the interest of people, nation and the world.

Objectives of the Paper:

1. The present study is undertaken with the following objectives
2. To interpret the concept of human development in global context.
3. To know the use human power as a resource to strengthen the country and the world.
4. To focus on the role of United Nations in human development.

Division of Paper:

The paper is divided into five parts

Part I Introduces the subject of discussion

Part II Brings out the concept of human development

Part III Deals with interconnection between Human Rights and Human Development and Human Development Index

Part IV Highlights the steps taken by United Nation for Human Development

Part V Presents conclusions

II. The Concept Of Human Development:

Previously human development was measured simply in the income or growth figures. But the changed approach views human development as to develop the abilities and competency of human beings and thereby strengthening the nation and the world.

The definition of United Nations Development programme in 1990 emphasize on this. Broadly it can be said that human development is to create an

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FARMERS INDEBTEDNESS IN INDIA: CAUSES AND MEASURES

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INTRODUCTION

Agriculture plays an important role in Indian economic development. India is a land of farmers. They are the backbone of our country. In India 60% of the people depends on agriculture sector. Indebtedness is one of the most serious problems of Indian Economy. At present, 60% of the national income comprises of agricultural income. Therefore, Government has taken various steps to enhance the agricultural productivity. Among these steps, the most vital step that government has taken is in favour of the farmers, against farmer's indebtedness. Farmers play vital role in agricultural development of the country, they cultivate crops and harvest them and to give us food grains. They not only give us food grains but also they take cash and non-cash crops which are exported to different regions of the India. It has been witnessed that in some states like Andhra Pradesh, Tamilnadu, Karnataka, Kerala, Madhya Pradesh, Haryana, Punjab, Maharashtra, etc. the farmers have commit suicide due to indebtedness.

MEANING OF INDEBTEDNESS

Indebtedness means an obligation to pay money to another party. In India when the poor farmers and wage labors are unable to repay a loan and accumulate it, gives rise to the problem of rural indebtedness. Rural indebtedness is an indicator of the weak financial infrastructure of our country, which includes inability of our economic system to reach to the needy farmers, landless people in the villages and the agricultural wage laborers.

Farmers take loans from the moneylenders either to buy land, seeds, fertilizers, pesticides. They basically take loans for their personal reasons like repaying off previous debts, daughter's or sister's marriage, and other ceremonial occasions. Most of the time, farmers could not repay back the money due to less income. Hence, the debt so accumulated goes on increasing days after days. Every loan is a debt and accumulation of debts is indebtedness. Indebtedness has made many farmers to loose their land and other properties. They finally decide to commit suicide rather than to die due to starvation. Farmers wastefully use money which they have borrowed from the rural moneylenders at high rate of interest. Only 20% of the money is used productively. Therefore the profit they earn from the agriculture is not sufficient enough to recover debt. Adhere to this, if there is any adverse situations like drought, flood, and crops are burnt by the enemies, etc. The farmers are unable to pay anything. In such situations, the farmers die under the burden of loan. His heir continues to pay off the debts of his forefathers. This continues till generations.

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Research Article

BIODIVERSITY OF BLUE GREEN ALGAE FROM SATARA DISTRICT (M.S.)

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ABSTRACT: Satara district is located in Western Ghats of Maharashtra. The district occupies 10,480 km^{2}area. The district includes 11 administrative tahasils viz., Satara, Karad, Patan, Jaoli, Wai, Mahabaleshwar, Phaltan, Maan, Khatav, Koregaon, Khandala. Entire district falls within Deccan trap area, however the common soil types are the black, loamy and clay. Some western part of district enjoys average annual rainfall exceeding 500 mm while eastern side has the rainfall less than 300 mm. These variations in environmental condition have helped this region to be rich in floral biodiversity. Present work was carried out to explore the diversity of blue green algae from Satara district. Variety of habitats from 82 localities were screened to explore blue green algae from the district. Between June 2010 to May 2013 in all 127 species from 36 genera belonging to 4 orders were recorded. Out of these 28 species were unicellular while 99 were filamentous. Filamentous forms were found to be dominant over unicellular forms.

Keywords: Biodiversity, Blue green algae, Satara district.

INTRODUCTION

Blue green algae or Cyanobacteria are phototrophic prokaryotic organisms. They inhabit almost all known photic habitats. They play important role in maintaining aquatic ecosystem and form base of food web (Thakur and Behere 2008). They show remarkable adaptations and surviving strategies because of which they survive under extreme environmental conditions. Therefore, they have become most successful organisms for survival even under stressed conditions. Factors controlling their distribution are pH, moisture, mineral nutrients, combined nitrogen etc. (Tiwari *et al.* 2005). Recently these organisms are known to generate pharmacologically active compounds (Singh *et al.* 2002). Now a days Blue green algae have been considered as a source of proteins (Subramanian 1996). During past few decades much work has been done on algal flora af rice fields throughout India (Devi et al 1999, Nayak et al 2001, Sinha *et al* 2003, Tiwary and Pandey 1976). Studies on blue green algae have been carried out from Western ghats of Maharashtra but most of the work was restricted to fresh water and paddy fields (Balkrishnan and Chougule 2002, Kolte and Goyal1985). Different regions of Maharashtra were explored to enumerate blue green algae (Ashtekar and Kamat 1980, Auti and Pingle 2006, Barhate and Tarar 1983a., Bhoge and Ragothman1986, Kamat 1962, 63, 64, 68, Mahajan and Mahajan1988b, 89, Nandan 2010, Sardeshpande and Goyal 1981). There are few reports on taxonomic work of blue green algae from Satara district but majority of the work was restricted to taxonomy of blue green algae from paddy fields (Karande 2009, Patil and Satav 1986); or particular taxonomic group (Ghadage and Karande 2008). Present investigation has been made to explore blue green algal diversity from Satara district of Maharashtra State of India.

MATERIALS AND METHODS

Study area

Satara district is located in Western part of Maharashtra in river basins of Bhima and Krishna. It is located between 17.5 to 18.11 N latitude and 73.33 to 74.33 to 74.54E. The climate ranges from rainiest region in Mahabaleshwar which has an average annual rainfall over 6000mm to driest region in Maan tahasil where average annual rainfall is about 300mm. Average maximum temperature recorded is 37.5°C while 11.6°C is the lowest average minimum temperature recorded. All these environmental conditions form a wide spectrum of microclimate for the growth and survival of diverse blue green algal forms and contribute to their diversity within the study area.

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ALGAE FROM DRY REGION OF SATARA DISTRICT (MAHARASHTRA)

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ABSTRACT

In all fifty- seven genera belonging to Chlorophyceae, Cyanophyceae, Euglenophyceae, Bacillariophyceae have been observed in this region. Chlorophyceae is represented by twenty five genera and forty-six species, Cyanophyceae by eight genera and twenty-three species, Euglenophyceae by two genera and two species and Bacillariophyceae by twenty-two genera and one hundred six species. Species of Bacillariophyceae showed dominance in this region.

Figures: 02 Tables: 02 References:23
KEYWORDS: Algae, Drought prone, dry region, Satara

Introduction

Western Ghat occupies a narrow strip of Maharashtra state facing Arabian Sea on one side and plains on other side. Number of mountain ranges run through the Western Ghats displaying peaks as well as valleys. District lying within this region enjoys the mountainous parts as well as plains in its territory. The hilly region enjoys subtropical climate while the plain on the eastern side receives scanty rainfall and thus comes under drought prone zone.

Satara district is located in south western part of Maharashtra state and lies between 17.50° to 18.11° North latitude and 73.33° to 74.54° east longitude along the Sahayadri ranges of Western Ghat. There are eleven tahsils in Satara district. Western part of Satara district includes tahsils - Mahabaleshwer, Wai, Patan, Jawali and Satara. These tahsils receive heavy rainfall and with basaltic, black cotton or lateratic fertile soils. However eastern part of Satara district includes tahsil - Khandala, Man, Koregaon, Khatv, Phaltan and some part of Karad are dry regions, receive scanty rainfall and thus come under drought prone zone. The average rainfall ranges between 500 to 700 mm. Soil is light called malran or murummal and is brown in colour. The soils are well drained, sandy loam in texture and calcareous, thus less fertile soil.

There are several reports on the algal studies from western Maharashtra [5 - 7, 14, 15, 21]

Few reports on the algal studies from Satara district are also available[11,14]. However there is scanty information on algal studies available from eastern part of Satara district [1,12,13,16]. Thus this region has remained unexplored for algal studies. Therefore to know the algal flora and to explore this part of Satara district present study was undertaken.

Material and Methods

The study area selected was the eastern part of Satara district. Thorough survey was made through the five tahsils (See map) Koregaon, Khatv, Man, Phaltan and Khandala throughout the year (2012–13). Screening of these water bodies was carried out after monsoon throughout the year. Algal samples were collected randomly in sterile polythene bags and bottles and brought to the laboratory. These algal specimens were preserved in 4% formalin for further microscopic observations. Some of algal specimens were cultured in different culture media (BG11, Chu10, Fogg).

Planktonic forms were collected by using plankton net of 30µm mesh. These planktonic forms were transferred to sterile bottles and 2 drops of Lugol's solution were added in each bottle.

Diatom samples were collected and processed for permanent slides preparation following the Brun's protocol[22].

Floristic study of algae was carried out by collecting algae from different habitats present in study sites. Algal identification was done by using relevant taxonomic literature[2-4,17-19,22,23].

Frequency distribution of different genera in study area was calculated by using following formula-

$Y \div X \times 100$

Where X – Total number of samples collected
Y- Number of samples in which species was present

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HUMAN IMPACT ON PHYSICO-CHEMICAL PROPERTIES OF SOIL IN RELATION TO MANGROVE ECOSYSTEM IN MALVAN TAHASIL OF SINDHUDURG DISTRICT, MAHARASHTRA, INDIA: A CASE ANALYSIS

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ABSTRACT
Mangroves characterize the tropical and subtropical regions of the world. The importance of mangroves is increasingly realized all over the world. Directly or indirectly mangroves have a major role to play in costal economy. The mangroves of Maharashtra state are mainly confined to 720 Km and spread over five districts namely. Mumbai, Thane, Raigad, Ratnagiri and Sindhudurg. The mangroves of Sindhudurg district are confined to 16 estuaries and occupy 1373 hectare area. The important species of this area includes *Rhizophora mucronata, Rhizophora apiculata, Ceriops tagal, Kandelia candel, Avicennia officinalis, Avicennia marina var. acutissima, Avicennia marina var. resinifera, Sonneratia alba, Aegiceras corniculatum, Lumnitzera racemosa, Excoecaria agallocha, Cynometra iripa, Derris heterophylla, Acanthus ilicifolius* and many others. In recent years mangroves are being degraded due to several reasons. The human activities leave their impact on natural environment. The human impact has become more acute in the Konkan region of the state where mangroves are found. In the present study an attempt is made to evaluate human impact on mangrove ecosystem in relation to construction work and on food chain at Malvan Tahasil of Sindhudurg District. In the presem study it is found that due to human activities there is significant change in physico-chemical properties of soil. Due to changed nature of soil the mangroves disappeared and there is emergence of fresh water forms. All above impact lead to some change or the other on mangrove flora and fauna. The present work attempts to record visible changes occurred in the mangrove vegetation.

KEYWORDS: Ecosystem, Human Impact, Mangrove soils and Physico-chemical properties.

INTRODUCTION

Man a single animal species *Homo sapiens* has grown to such an extent that he has endangered himself by 'depleting the natural resources by over exploitation, as well as by exerting several types of pressures on the environment through his activities. Human activities leave impact on the natural environment, which may be temporary or permanent. The problem of human impact became more acute in the areas like Konkan of the Maharashtra state. Because the man has realized the fact that his very existence is in danger, due to his environment which is losing it's original, natural stable composition. He now wants to assess the damage caused or will possibly cause to the environment by any of his act. Therefore, a practice of 'Environment Impact Assessment (EIA) is followed before (or even after) any major act of the man which is going to have modification effect on environment. The Environment Impact Assessment (EIA) has two facets, firstly; when the impact is known and secondly when the impact is not known. Bhosale (1990 a) pointed out different sources of impact on the hydrological cycle in relation to mangrove vegetation. However, quantification though very necessary, it is very difficult in case of human impact assessment with respect to mangrove ecosystem.

In the present investigation an attempt has been made to evaluate human impact by studying some of the aspects such as construction work, sewage pollution and their by change in mangrove habitant namely the soil. All these aspects lead to some change or the other in the mangrove flora and fauna. The present work attempts to record visible changes occurred in the vegetation.

2014-15

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Full Length Article

Ecological notes on two sacred groves along Krishna River Basin of Sangli district

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ABSTRACT

Sacred groves were a feature of the mythological landscape and the cultural practice of mankind. Sacred groves also feature prominently in many Asian and African mythologies and cultures, most notably in India, Japan, West Africa and Anatolia. In India, sacred groves are scattered all over the country and do not have any federal legislation. Each sacred grove is associated with presiding deity and the groves are referred to by different names in different parts of India. They were maintained by local communities with hunting and logging strictly prohibited within these patches. Sacred groves are protected areas of forest because of religious beliefs and constitute an important aspect of the cultural life of various communities through out the world. The biodiversity keeps the ecological processes in balanced state, which is necessary for human survival. Therefore, the biodiversity rich sacred groves are of immense ecological significance. They also play an important role in the conservation of flora and fauna.During the present investigation, two different sacred groves from Krishna river basin of Sangli District namely Brahmnal and Ankalkhop were visited regularly to record ecological features. It includes, floristic composition, dominance, associations amongst the plant species. The vegetation is scrub with dry deciduous forest. The soil substratum is also hard with less water holding capacity. The grasses dominate during rainy season. The vegetation mentioned in above groves is very typical in nature. These groves conserve plants in situ.

Key word: Ecology, Sacred groves, and Krishna River Basin

INTRODUCTION

Sacred groves were a feature of the mythological landscape and the cultural practice of old Europe, of the most ancient levels of Scandinavian mythology, Greek mythology Slavic mythology, Roman mythology and in Druidic practice. Sacred groves also feature prominently in many Asian and African mythologies and cultures, most notably in India, Japan, West Africa and Anatolia.

In India sacred groves are scattered all over the country and do not have any federal legislation. Each sacred grove is associated with presiding deity and the groves are referred to by different names in different parts of India. They were maintained by local communities with hunting and logging strictly prohibited within these patches. The sacred groves are mainly associated with local Hindu gods, but sacred groves of Islamic and Buddhist origins are also known. Sacred groves occur in variety of places like scrub forests in the Thar desert of Rajasthan to tropical rain forest of Kerala Western Ghats.

Sacred groves are traditionally protected small patches of vegetation types and managed by local communities through a wide range of management practices are biological heritage. They are dedicated to local deities or ancestral spirit is protected through social traditions by local people and taboos that incorporate spiritual and ecological values. These sacred groves are preserved over course of many generations; represent native

2014-15

Illuminated Optical Magnifier

MILIND M. SUTAR

EFY S.C. DWIVEDI TESTED

We often face problem while reading the values of ICs and miniature SMD components, detecting cracks or shorts in tracks in a PCB, or reading a finely-graduated vernier scale. Here is a solution to the problem in the form of a simple optical magnifier that simultaneously magnifies and illuminates the object.

Circuit and working

The main constituents of the magnifier are a convex lens with focal length of about 10cm for magnification of the object, a set of eight white LEDs to illuminate the object, an LED driver circuit for powering the LEDs and some other components. Fig. 1 shows the circuit diagram of the optical magnifier.

Snubber capacitor C1 at the input reduces the line-input voltage of 230V to a very-low-level AC voltage. The full-wave bridge rectifier, comprising diodes D1 through D4, converts the low-level AC voltage into DC voltage. C2 is a smoothening capacitor. Series current-limiting resistor R1 and series inductor coil L1 avoid voltage spikes.

Two branches of the LEDs are connected in parallel. Each branch has four LEDs connected in series as shown in Fig. 1.

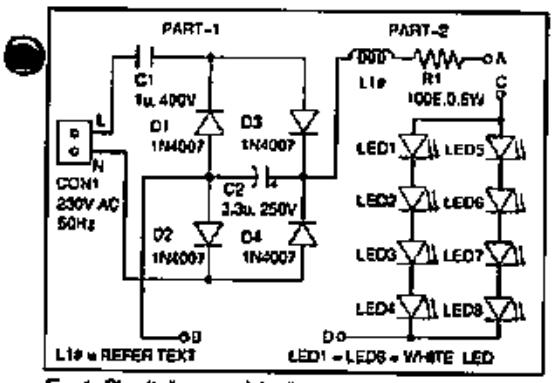

Fig. 1: Circuit diagram of the illuminated optical magnifier

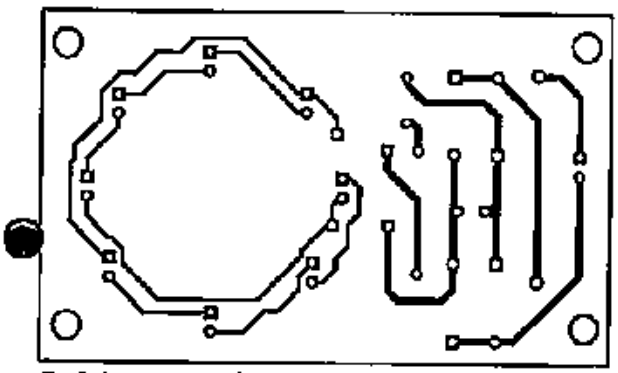

Fig. 2: An actual-size PCB of the optical magnifier

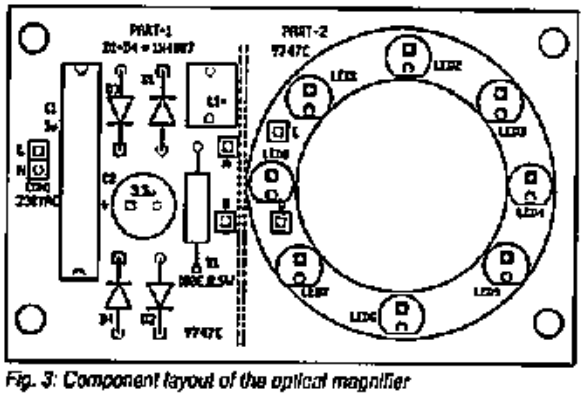

Fig. 3: Component layout of the optical magnifier

Construction and testing

An actual-size, single-side PCB for the optical magnifier is shown in Fig. 2 and its component layout in Fig. 3. Before assembling the circuit, cut the PCB across the dotted line and assemble the circuit on two separate PCBs as part 1 and part 2.

The PCB for mounting the LEDs (part 2) is in annular shape as shown in Fig. 3. LEDs are placed around the lens as shown in Fig. 4. Drill eight holes to house LED holders. You can also have a press-fit arrangement.

Enclose PCB part 2 in the PVC pipe in such a way that light from the LEDs falls on the object but the LEDs do not obstruct the view. Enclose PCB part 1 in the side tube. Power PCB part 1 by connecting it to the mains by a flexible power cord. Ensure proper wiring insulation to avoid shock while using the magnifier.

PARTS LIST

Semiconductors:
D1-D4 - 1N4007 rectifier diode
LED1-LED8 - 5mm white LED

Resistor:
R1 - 100-ohm, 0.5W, ±5% carbon

Capacitors:
C1 - 1µF, 400V polyester
C2 - 3.3µF, 400V electrolytic

Miscellaneous:
CON1 - 2-pin connector
L1 - 20 turns of 20SWG of enamelled copper wire on toroidal core (OD=20mm, ID=12mm and height=6mm)

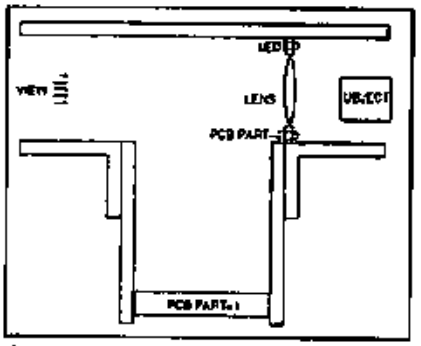

Fig. 4: Gross-sectional view of the optical magnifier

Fig. 5: Author's prototype

Fit PCB part 1 that has the circuit for powering the LEDs in the side tube as shown in Fig. 4. Outer diameter of PCB part 1 will be the same as the inner diameter of the side tube. Connect points A and B on part 1 to points C and D on part 2, respectively, through external wires.

The arrangement shown in Fig. 4 is schematic and not to scale. The outer diameter of the lens will decide the overall arrangement. You will have to make suitable clamps to hold the lens and PCBs inside the tube. Another possible arrangement used by the author is shown in Fig. 5.

Milind M. Sutar is assistant professor of Physics at S.M. Dr Bapuji Salunkhe College, Miraj, Dist. Sangli, Maharashtra

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Research Paper

Studies in rust fungi VIII

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Abstract

Two rust fungi *Puccinia iphigeniae* sp. nov. collected on *Iphigenia pallida* Baker (Liliaceae) and *Uromyces euphorbiae* Cooke and Peck var. *euphorbiicola* (Tranz.) Arthur on the leaves of *Euphorbia thymifolia* L. and *E. chemaesyce* L. have been described in the present article. *Puccinia iphigeniae* sp. nov. is a new species and *Uromyces euphorbiae* Cooke and Peck var. *euphorbiicola* (Tranz.) Arthur is a nomenclatural change.

Keywords: Rust, Puccinia, Uredinales, Uromyces.

1. Introduction

Present paper is a continuation of study of the rust fungi from South Western parts of Maharashtra State (M .S. Patil 1975, 1977, 1991; Anjali Patil & M.S. Patil 2004 & 2005; Anjali Patil & C. R. Patil 2009; Anjali Patil, et al.2011).Western Ghats with very good vegetation and favorable climatic conditions harbors many interesting fungi, especially rusts & smuts. During routine collection we found two interesting rust fungi, which were collected and bring to laboratory. After critical examination of fresh collections by routine methods in the laboratory, they were identified using recent literature & deposited in National Fungal Culture Collection of India, ARI, Pune, and Maharashtra State, India.

Puccinia iphigeniae sp. nov., Plate I, Fig. a-e.

Pycnia & aecia not seen; infection foliicolus, pustulate; pustules hypophyllous, scattered, separate but closely disposed, minute brown, sub-epidermal, round innate, 50-60 x 125-150µm; Uredinia separate, cinnamomun brown, paraphysate; urediniospores pedicillate, 15-20 x 20-25 µm, obovoid, ellipsoid or round, rarely thin-walled, 2-3 µm, sparsely echinulate/verrucose or smooth, germ pores 4, bi-zonnate, confined to upper & lower side, faint brown; teliospores 2-celled, pedicillate, golden-brown, 12.5-20 x 30-50 µm, clavate-obovoid, attenuated at the apex, beaked or sometimes flat, smooth walled, constricted at the septum; wall 2.5-3.0 µm, thick laterally, thickened at the apex upto 5 µm; pedicels short, persistent, hyaline, thin walled, short, 5 -11.5 x 35-45 µm.

Habit

On the living leaves of *Iphigenia pallida* Baker (Family-Liliaceae), at Kas, District Satara, Maharashtra State, 7th Oct. 2012, Anjali R. Patil , National Fungal Culture Collection of India (NFCCI), ARI, Pune, Maharashtra State, India AMH no. 9566.

Remarks

About 12 genera of Family Liliaceae are known from Maharashtra state. Genus *Iphigenia* is represented by 4 species (Sharma et.al.1996). A survey of literature shows that there is no report of rust on *Iphigenia* Kunth. In the present collection only uredinia and telia have been observed and it is hemiform. On the basis of morphology of teliospores and urediniospores and a distinct host genus *Iphigenia*, a new species has been proposed to accommodate the present collection as *Puccinia iphigeniae* sp.nov.

Uromyces euphorbiae Cooke and Peck var. *euphorbiicola* (2)
= *U. proeminens* (DC.) Pass. var. *euphorbicola* (Tranz) Arthur, Manual of Rusts USA and Canada, p. 309, 1934.
= *U. ephorbiae* Cke. And Peck. J. Mycol. and Pl. Pathol. 34 (3):830, 2004.

Habit

On the living leaves of *Euphorbia thymifolia* L. and *E. chemaesyce* L. (Fam.-Euphorbiaceae) Shivaji University Campus, Kolhapur, Maharashtra State, 21st Aug.1996 & 14th Dec.1999, Anjali R. Patil, HCIO Nos. 43221 and 43220 respectively.

Remarks:

This rust produces systematic infections with obsolete aecia and produce hypertrophy and witch's broom. It shows wide geographical distribution in four continents viz. America, Australia, Africa and Europe on more than 18 species of the host genus *Euphorbia* showing progressive reduction in the spore state from macrocyclic (0, I, II, III) to only teliospores (III) observed in Africa.

Arthur (1934) recognized four varieties on the host basis. According to Jorstad (1956) the rust is a compound species, embracing slightly different forms, all on the members of *Euphorbia*. The urediniospores show 3 germ pores equatorially arranged and both teliospores and urediniospores are ornamented. Accordingly, Zdenek & Urban (1950) raised new combitions viz. *U. euphorbiae* (Lee and Peck var. *euphorbiicola* (Tranz.) Z. Urban for the Cuban material on *Euphorbia* species. The same variety was collected on the two species of *Euphorbia* during the present work. This rust was previously published by the author as *U. euphorbiae* Lee and Peck, now reduced to a variety.

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TRENDS OF URBANIZATION IN SOUTH MAHARASHTRA

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Dr. Patangrao Kadam Arts & Comm. College,
Pen –Raigad.

Introduction:

Rapid urbanization has been a worldwide phenomenon in the 21st century. In developing countries like, the challenges of urbanization become even more serious in the context of urban poverty which is large extension of rural poverty. The analysis of internal migration and in particular, rural-urban migrat essential in understanding not only the process of urbanization but also the overall process of eco development. It should be noted that though the level of urbanization in terms of the proportion o urban population to the total is low in India, the urban population in absolute terms is high estimated at over 125 million. The study of India's urbanization therefore, assumes added importance

Urbanization is the spatial concentration of people and economic activities. A city is an interrelated net of economic markets of housing, labour, land, transport and so on, situated in a spatial area. Urban involves transformation of population, production process and socio-political environment of mainly economy. In urban areas there is found high spatial concentration, high specialization in the produc goods and services, close interdependence in private and public sectors, as well as high level of techno innovation and entrepreneurship.

Present Research Paper has divided into five sections. First Section reveals the introductory part and co of urbanization. Second section focuses on trends of urbanization in India. Section third indicates the t of urbanization in South Maharashtra i.e. Kolhapur, Sangli and Solapur District. Fourth section expla problems of urbanization and last section shows the findings of the study.

Objectives of the Study:

Following are the main objectives of the study:

1. To understand the concept of Urbanization,
2. To study the trends of urbanization in India.
3. To study the trends of urbanization South Maharashtra (Kolhapur, Sangli and Solapur Distric
4. To study the problems of urbanization in South Maharashtra.

Concept of Urbanization:

Urbanization is the movement of population from rural to urban areas and the resulting in proportion of a population that resides in urban rather than rural places. It is derived from the Latin term used by the Romans to a city. Urban sociology is the sociology of urban living; of people in group social relationship in urban social circumstances and situation.

Urbanization is a two way process because it involves not only movement from village to cities and from agricultural occupation to business, trade, service and profession but it also involves chang migrants attitudes, beliefs, values and behavior patterns. The process of urbanization is common world. The facilities like education, healthcare system, employment avenues, civic facilities and welfare are reasons attracting people to urban areas.

2014-15

Pollination in *Habenaria foliosa* var. *foetida* (Orchidaceae)[a]

Bhaurav Tukaram Dangat[1] & Rajaram Vitthoba Gurav[1]

Keywords/Mots-clés: *Habenaria*, moth/papillon nocturne, Orchidaceae, pollination biology/biologie de la pollinisation.

Abstract

The highly specialized mechanisms of orchid pollination have been the subject of many studies from Darwin to recent researchers. For the first time pollination of the terrestrial orchid *Habenaria foliosa* var. *foetida* by blue tiger butterfly (*Tirumala limniace*) during day time and by a moth of the genus *Dysgonia* during the night is reported from India. The emission of a fetid odour during the daytime is a peculiar characteristic of this terrestrial orchid flower which attracts a butterfly offering nectar as a reward. During the night moths are attracted by the whitish green colour of the flower again for nectar. More flowers are effectively pollinated during day as compared to the number pollinated during the night.

Résumé

Pollinisation chez *Habenaria foliosa* var. *foetida* (Orchidaceae) – Les mécanismes de pollinisation hautement spécialisés chez les orchidées ont fait l'objet de nombreuses études depuis Darwin jusqu'aux chercheurs actuels. Cet article rapporte, pour la première fois, la pollinisation de l'orchidée terrestre *Habenaria foliosa* var. *foetida* par le papillon *Tirumala limniace*, dans la journée, et par un papillon nocturne du genre *Dysgonia*, la nuit. L'émission d'une odeur fétide au cours de la journée, caractère particulier de cette fleur d'orchidée, attire les papillons. De nuit, les papillons nocturnes sont attirés par la couleur vert blanchâtre de la fleur. Dans les deux cas, la fleur offre son nectar en récompense.

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शेजारी देशांशी भारताचे सीमातंटे आणि घूसखोरी : विशेष संदर्भ काश्मिर मधिल घूसखोरी

प्रा.सुनिता हनुमंतराव गित्ते
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प्राचीन काळापासून नैसर्गिक सिमांचे वरदान लाभलेला भारत देश १५ ऑगस्ट १९४७ रोजी स्वतंत्र झाला. स्वांतत्र्याबरोबरच त्याला फाळणीचीही झालर प्राप्त झाली होती. अत्यंत गुतांगुतीचे आणि जलद घटनाक्रमाद्वारे भारताची फाळणी झाली होती. वसाहतीच्या कोशामधून बाहेर येत असतानाही भारतास बऱ्याच प्रमाणामध्ये वसाहतीक शासनाच्या धोरणांचा पाठपूरावा लागत होता. त्यापैकीच एक म्हणजे भारताच्या संस्थानाचे विलीनीकरण होय. या विलीनीकरणाच्या प्रकियेतील वसाहतीक नीती आणि नव्याने उदयास येऊन शेजारी राष्ट्र बनलेल्या पाकिस्तानने भारताच्या काश्मिर मधील सीमाभागात घूसखोरी केली आणि सीमातंटा सुरू झाला. प्रस्तुत शोधनिबंधामध्ये काश्मिरसीमेवरील घूसखोरीचा प्रश्न हा २७ जुलै १९४९ पर्यतच अभ्यासलेला असून त्यासाठी दुय्यम प्रतीच्या लिखित तथ्याचा आधार घेण्यात आलेला आहे. ही या शोधनिबंधची मर्यादा आहे.

१५ ऑगस्ट १९४७ रोजी भारताने स्वातंत्र्य मिळविले.[१] परंतु त्याचबरोबर भारताची फाळणीही झाली होती. राष्ट्राच्या विभाजनाबरोबर भारतापुढे उभ्या ठाकलेल्या बहूविध समस्यापैकी एक विकट समस्या होती ती संस्थानाच्या विलीनीकरणाची. त्या संदर्भात काश्मीरच्या विलीनीकरणाचा प्रश्न अत्यंत जिकिरीचा व गुंतागुंतीचा ठरला. फाळणीपूर्वी महाराज हरीसिंग या हिंदू संस्थानिकाच्या स्वामित्वाखाली असलेल्या काश्मीरचे क्षेत्रफळ ८४,४७१ चौरस मैलांचे व संस्थानची लोकसंख्या जेमतेम ४,२५०,००० होती. त्यात हिंदू

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ANALYSIS OF PHYSICO-CHEMICAL PARAMETERS OF WATER IN VARIOUS VILLAGES IN TASGAON TAHSIL, SANGLI DISTRICT. MAHARASHTRA - INDIA

R.A. Nalawade [a,b,*], A.M. Nalawade [a], C.P. Mane [a], D.V. Rupnawar [a], M.K. Sakate [a], B.S. Londhe [c], R.V. Shejwal [a], M.A. Anuse [b]

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ABSTRACT :

In this paper we have were analyzed the various physical and chemical Parameters of various samples from Tasgaon Tahsil, Sangli District of Maharashtra-India such as Temperature, Turbidity, Total Dissolved Solids, pH, Dissolved Oxygen, Total Hardness, in July 2014. All Parameters were within the Permisible limits. The results indicate that the water is Non-polluted and can be used for drinking purpose.

Keywords : Water quality parameters, permissible limits

INTRODUCTION :

Water is one of the abundantly available substance in nature. Next to air, water is most important substance for existence of life on earth. Water is distributed in nature in different forms such as rain water, river water, sea water, etc. The chief source of all water supply schemes at present is rainfall. Water is an essential constituent of matter of animals and vegetables and form about 71% of the matter of earth crust.

In human body water is of almost physiological importance and has specific functions to purpose. Water accounts for about 70% of the mass of our body temperature. As it is best solvent of electrolyte, it helps to regulate electrolyte balance of our body and maintains healthy equilibrium of osmotic pressure exerted by solute dissolved in water. A state of good health is a possible as long as osmotic pressure exerted by solute remain constant.

Water is most important than food. Deprivation of water brings about death much more quickly than food the total water constitutes 60% to 70% mass of our body weight.

Water is an essential ingradient of animals and plant life. The analysis of water is most important because the water is essential to developing life on earth. Water contains number of impurities which are necessary to be checked and eliminated before the water use for different purposes. Generally municipal water is used for drinking purpose, it is necessary to purify for drinking. Hence it is analysed by verification of the certain parameters of water which gives information easily about its contamination. e.g. Colour, turbidity, dissolved solids, hardness alkalinity, chloride, pH etc.

Water plays an essential role in human life. Although statistics, the WHO reports that approximately 36% of urban and 65% of rural Indian were without access to safe drinking water [1].Fresh water is one of the most important resources crucial for the survival of all the living beings. It is even more important for the human being as they depend upon it for food production, industrial and waste disposal, as well as cultural requirement [2]. Human and ecological use of ground water depends upon ambient water quality. Human alteration of the landscape has an extensive influence on watershed hydrology [3].

Due to Increased Human Population, Industrialization, use of fertilizers in agriculture and man-made activity, natural aquatic resources are causing pollution in aquatic environment leading to decline of water quality and depletion of aquatic Biota. It is therefore necessary that the quality of drinking water should be checked at regular time interval. Due to use of contaminated drinking water, human population suffers from a variety of water born diseases.Therefore in India several researchers have done Study on Physicochemical characteristic of standing and running Water Resources [4-6]. In present study we have studied various physico-chemical parameters of fresh bore water samples of various villages in Tasgaon tahasil.

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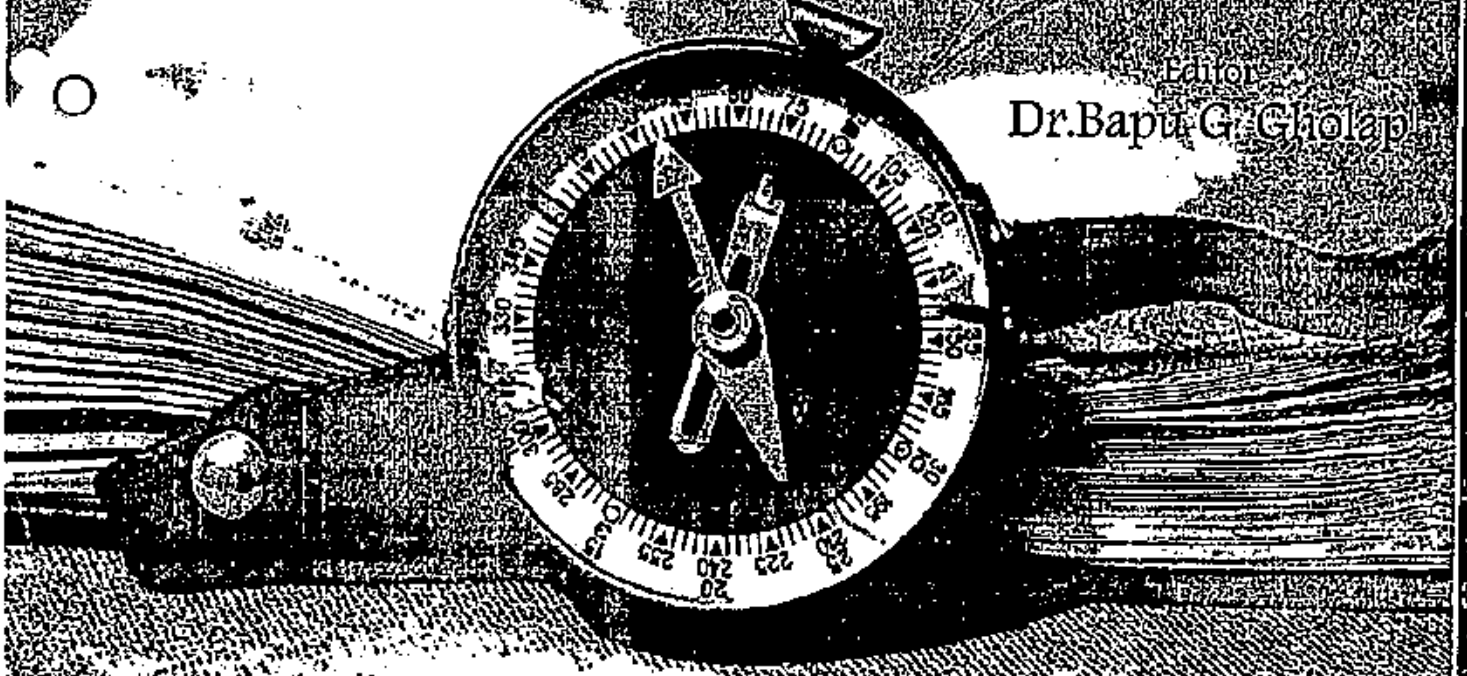

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❖ 'विद्यावार्ता' हे त्रैमासिक मालक व प्रकाशक अर्चना राजेंद्र घोडके यांच्या हर्षवर्धन पब्लिकेशन प्रायव्हेट लिमीटेड, लिंबागणेश जि.बीड येथे मुद्रीत करुन संपादक डॉ. बापू गणपत घोलप यांनी मु. पो. लिंबागणेश, ता. जि. बीड-४३१ १२६ येथे प्रकाशित केले.

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Need of the Mental-Skills Training for Achieving Higher *Performance in Sports*

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ABSTRACT:

Research done on the psychological features of selected athletes has fundamentally focused on higher level achievements. However, young athletes, having great potential and talent, are needed to be properly and psychologically trained to enhance their performance which is the dire need of any nation. Moreover, the athletes who are highly talented in the sports and games need to be rendered proper guidance for their all-round development and bright achievements in sports.

The present study explains the broader qualities of psychological development of young athletes. The talented athletes of any discipline should have healthy spirit and good physique. The second implication of the current study relates to the evaluation of mental-skill training programs for youth athletes. Inductive content analysis of categories of psychological qualities, including enjoyment, responsibility, adaptability, team spirit, self-awareness, determination, confidence, optimal performance, game consciousness, target-oriented focus and efforts, mental toughness, etc. should be aimed at.

Key words -

Mental skills, Yogic practice, Meditation, Self-confidence

The above qualities help the sportsperson to achieve highest goals. They could help to improve the abilities and move towards the best performance. They boost the sportsperson for even developing the sportsman's spirit. The researcher wants to discuss sportsperson's qualities leading towards the sportiveness and better achievements during his/her career.

1. ENJOYMENT:

Mental satisfaction is very important for athletes while participating in any game or tournament. Participation in any results in happiness when he/she participates in any event. Even the coach should try to extend the training to the participants from this point of view. He should adopt suitable method of training that would create the positive outlook in the athletes. Their potential should be identified and it should e boosted. Whatever the efforts the coach takes, they should be athlete-oriented. The happiness depends not only on the stout physic but on the mental health also. So, as far as the players' performance is considered, the coach should work in the light of physical as well as the mental health. Happy and healthy mind is the vital factor that plays very important and personality-shaping role in creating sportsmanship in every athlete.

2. RESPONSIBILITY:

The sense of responsibility is most needed thing while any player participates in any sports event. Though all the players play in the interest of winning medals, they must be aware of the fact that when one wins, the other has to lose it. The victory symbolizes not only the winning aspect but the defeat also. What the sportsperson gains is no doubt important but at the same time it becomes the prime duty of all the players to multiply the fame of the game. Though the players should aware of this on their own, the coaches also try to instill this awareness among the players. So it becomes the joint responsibility of all. When the sports events survives then and then only the sports persons survive. The well-known player, as the society expects, should behave in the society and also in personal life with great responsibility. The bright and successful player

The success is needed but it should be achieved only through the proper and socially accepted ways. The player should not become to prey to the bad practices like addiction, mal-practice, etc.

7. CONFIDENCE:

It is the confidence of the sports persons that matters much as far as the success in any sports event is concerned. Confidence means to have the proper knowledge of the strength that is already there in the sports persons. It relates with the human mind. It is the real strength that may change the defeat into the victory. So the duty of the coach is to create the sense of confidence among the players. If needed the help, consultation and advice of the psychologists can be sought. This may include:

i. Development of mental ability

ii. Developing the sense that "I will become Successful"

iii. Development of skills to win any circumstance

iv. Discarding the sense of fear from the minds of the sports persons

v. Development and multiplication of the potential that is already in players

The coach should try to make available this kind of training and coaching to all the sports persons.

8. OPTIMAL PERFORMANCE:

The optimal performance means the highest performance as far as his/her utmost abilities are concerned. Using mental as well as the physical strength, skills, potentials, the sports person should try to show optimal performance. The coach should always try to back up them in order to get good performances from them. So, "to get good sow good" is the principle that the trainer and the coach both should always keep in mind. How to get full control over mind. how to utilize the physical strength for the best performance, how to boost the players. all this the coach should be aware of.

It should be kept well in mind that impatience on the part of athletes and excessiveness in showing skills of the game may lead the athletes who failure .The athletes must use his or her potential at the time of play and keep balanced while playing the game. The very useful information and guidance should be given by the coach to the athletes.

9. GAME CONSCIOUSNESS:

Game consciousness stands for having the complete knowledge of the concerned game. This includes the rule and regulations of the game, various skills needed about that particular event, etc. the coach should impart training regarding all the aspects of the game.

The consciousness of the sports persons about the game can be made instrumental through the following things:

i. Consciousness regarding the potential among the players

ii. Consciousness regarding the framing of the policies

iii. Exchanging the things and imparting the skills of the particular qualities

10. TARGET-ORIENTED FOCUS:

Each and every effort of the sport person should be target-oriented. The coach should always coach them how to achieve the target. To make all the players to utilize their skills, knowledge of the technicalities of the game, the potentials and many more things for achieving the aim or the target that is generally set before them at the very onset. Though the players play utilizing almost all their abilities, the coach should always remind them the target they have to attain. Spare the loop-wholes and perform the best should be the motto of the team. So it becomes the responsibility of not only the player but also of the coach to define the target and motivate them to achieve the same. It is the awareness in addition to the physical fitness that matters the most in performing well and then the best.

11. MENTAL TOUGHNESS:

Mental toughness is one of the important features that should be created among all the athletes. It is observed that many a time the player plays under the tension and only because of it he/she faces the poor performance. In such a situation the trainer/coach should try to overcome the inferiority complex existing in the players. It is the prime task of the every coach that the players should be trained to

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MICROWAVE ASSISTED SYNTHESIS, STRUCTURE, SPECTRAL CHARACTERIZATION AND BIOLOGICAL STUDIES OF (E)-N'-(4METHYLBENZYLIDENE) HYDRAZINECARBOTHIOHYDRAZIDE

R. A. Nalawade[1,2], A. M. Nalawade[1], C. P. Mane[1], D. V. Rupnawar[1], M. K. Sakate[3], B. S. Londhe[3], R. V. Shejwal[1] and M. A. Anuse[2]

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Abstract:
Development of simple, efficient, environmentally begin and economically viable chemical process or methodologies for synthesis of organic compounds are in great demand. A (E) - N' - (4-methylbenzylidene) hydrazinecarbothiohydrazide (4-methyl BI HCT has been synthesized by reacting 4-methyl benzaldehyde and thiocarbohydrazide under microwave irradiation without catalyst under solvent free condition, as a green chemistry approach. The reaction proceeds selectively within a couple of minutes giving high yields of the product. The compound was characterized by elemental, Uv-visible, IR, NMR and mass spectra. The compound was tested for the evaluation of antibacterial activity against *S. aureus* and *E. coli* and antifungal activity against *A. niger* and *Rhizopus spe*.The compound is biologically active in very low concentration

Keywords: Microwave mediated synthesis, thiocarbohydrazide, green chemistry, Antibacterial and antifungal activity

Introduction:

Thiocarbohydrazide Schiff bases are a class of important compounds in medicinal and pharmaceutical field. They show biological activities including antibacterial [1-7], antifungal[8-11], anticancer [7-16], and herbicidal [9]activities. Furthermore, Schiff bases are utilized as starting materials in the synthesis of industrial [12-17] and biological compounds [11-22].

Thiocarbohydrazides are an important class of compounds which possess applications in many fields. The chemistry of thiocarbohydrazides has gained increased interest in both synthetic organic chemistry and biological fields and has considerable value in many useful applications such as the assessment process of the three-dimensional ultrastructure examination techniques of interphase nuclei and tissues, besides their therapeutic importance. They are also described for use as fogging agents and are considered as safe, storable, and cool-burning pyrotechnic compounds for dissemination of smoke, chemical warfare agents. On the other hand, thiocarbohydrazides are used in performing a highly selective heavy metal ion adsorbent and as complexing agents for the solvent extraction separation methods. Thiocarbohydrazide was used as a complexing agent for the solvent extraction separation of some bivalent metals such as Cd from Co, Cu, and Pb and of Pb from Ni and Pd and Cu from Zn and Hg and of Pb from Zn and Cd using various masking agents [23,24]. Thiocarbohydrazide, thiosemicarbazide, ethylenebis(thiosemicarbazide) and dithiobiurea are considered as safe, storable, and cool burning pyrotechnic compounds for dissemination of smoke, chemical warfare agents, etc [25].

Microwave-assisted organic synthesis is characterized by the spectacular accelerations produced in many reactions as a consequence of the heating rate, which cannot be reproduced by thermal heating. Higher yields, milder reaction conditions, shorter reaction times can be used and many processes can be improved. The applications of microwave irradiation are used for carrying out chemical transformations, which are pollution free and eco-friendly. The basis of this technique of synthesis is much faster with higher yields compared to conventional heating. Reports on the synthesis of Schiff bases and their metal complexes by microwave methods have been comparatively less [26-31].

Schiff base ligands have been widely studied in the field of coordination chemistry mainly due to their facile syntheses, easily availability, electronic properties and good solubility in common solvents. A large number of Schiff bases and their complexes have been studied for their important properties e.g. their ability to reversibly bind oxygen, transfer of an amino group and complexing ability towards some toxic metals[32-34]. The high affinity for the chelation of the Schiff bases towards the transition metal ions is utilized in preparing their solid complexes. Schiff base metal complexes have been useful to design and develop some models for biological systems. Transition metal complexes which usually contain nitrogen, sulphur /or oxygen as ligand atoms are becoming increasingly important because these Schiff base can bind with different metal centers involving various coordination sites and allow successful synthesis of metallic complexes with interesting stereochemistry [35-38].

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Original Article

The Role of Counseling in HIV/AIDS and other Diseases

Nilakhe S. B.
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Introduction

It should be noted that counseling is an integral part of comprehensive care for HIV/AIDS. While most countries focus on Clinical management at initial Stages of the disease, counseling tents to be neglected. Health care professionals are not oriented to counseling in their training programmers. Therefore, political will to strengthen counseling at all levels, as well as to introduce it into the curricula of all health professionals, is urgently required. During the early stages of the pandemic, the issue of HIV testing and counseling was often the focus of much debate. While it is now agreed that testing must be accompanied by counseling there is still uncertainty about the training in different testing contexts particularly at blood banks and when there is, widespread testing for research purposes.

Research Method:

For the preparation of this research paper the researcher has used the following methodology:

A) Sources of Data Collection :

In these research paper sources of data collection is mainly based on the books Journals & Articles published in different periodicals time to time.

B) Objectives :

The main Objectives of the study are -

1) To understand the Counseling Concepts
2) To understand the Counseling HIV-STI Co-infection.
3) To understand Counseling issues related to HIV-TB Co-infection.

Meaning of Counseling:

Counseling is an ongoing process where in the client and counselor, work together to assist the client & resolve their problems. Counseling is also a learning oriented process carried on in a social environment in which the professionally complete counselor attempts to assist the counselor using appropriate procedure to become a happy & productive member of the society by formulating realistic & purposeful goals for attaining total growth.

Characteristics of Counseling:

1) Counseling is aimed at bringing about desired changes in the individual for self realization and providing assistance to solve problems through an intimate personal relationship.
2) The counseling discovers the problems of the counselee and help him to set up realistic goals and guide him difficulties and problems.
3) It is more than advice giving solution emerges through the thinking that a person does for himself rather than through solutions suggested by the counselor.
4) Counseling concerns itself with attitudes as well as actions

Counseling Issues related to HIV-STI Co-infection:

About 4% to 6% of the population suffers from sexually transmitted infections every year. In India NACO completed a community based study on the prevalence of STIS in rural & urban areas of India in 2003.

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ECONOMIC ANALYSIS OF MAHARASHTRA STATE ROAD TRANSPORT CORPORATION: A CASE STUDY OF KOLHAPUR DIVISION

Dinkar K. More[1]
Tukaram M. Rabade[2]

ABSTRACT

Maharashtra Road Transport Corporation (MSRTC) came into existence in 1948 and has been providing services to more than 70 lacks passengers daily during given period of time covering entire part of Maharashtra and surrounding states. MSRTC covers 247 depots 570 ST stands, 4277 bus stops, 16698 routes and 15368 buses at lowest cost to its passengers throughout the year. MSRTC experienced 1500 Crore loss during 2013. Almost all the regions, divisions and depots experienced deficit during last few years. From these facts, emerges the importance of studying the economic performance of the MSRTC. Kolhapur division is selected for the micro level study in context to economic performance of this division for last thirteen years. The paper is based on the secondary data from the official records of Kolhapur division of MSRTC. Economic performance is measured through CPKM and EPKM of the Kolhapur division. It is observed that Kolhapur division has deficit for the last 13 years.

Keywords: Earnings per Kilometer, Economic Analysis, Economic Performance, Maharashtra Road Transport Corporation (MSRTC), Passenger.

NTRODUCTION

Transport is the science of moving men and materials Encyclopaedia of America). It is the movement of persons r property from one place to another. Any transportation etwork is a manifestation of the contemporary spatial rganization of economy, social conditions and political set p. It also carries a bold impression of the past; it evolves radually through the human history experiencing may stages rimary, diffusion, condensation and saturation not come into eing all of a sudden (Singh, 1966).

s per the time goes out, means of transport has also been hanging according to changed conditions and particular equirements. In India also the transport system has been perienciag continuous growth and development over the ast few years. An efficient, effective and adequate system of ansport is necessary for economic development of any ation.

e transport industry undertake the extensive movement of rsons and things from one place to another constituted one the most important activities of men in every stage of lvanced civilization. Marshall (1932), observed that the nsport and economy goes hand in hand. It means, if rapid velopment occurs in the economy, then pressure on transport so increases. Transport is the factor barometer of economic, cial and commercial progress that has transformed the entire orld into one organized unit (Ogburn, 1964).

carries ideas and inventions to the people of different untries. It has virtually contributed to the development of human culture and ecology. Nowadays, the development of transport is of vital importance for the growth of urban as well as rural economy, and quelling the barriers between states, regions, individual towns and villages. Transportation is one of the important elements for national integrity. Especially, in our agro based industrial economy, with the major emphasis on the economic activities like agricultural operations, concentration in 5.5 lakh scattered villages, the necessity to inter connect them and bring them into main stream of national economy is obvious (Hanumanthappa, 1975).

The development of any country and the improvement in the quality of the community largely depend upon a good transport system. A well organized transportation system is a most fundamental instrument, for central advice, guidance and action to keep a country as large as India together and ensure smooth administration of law, order and stability. The industrialization of a country and the development of productive forces based on it can be achieved only by a sound and strong transport system.

Therefore, transport is one of the infrastructural components, which is essential for industrial development as well as economic development of India especially of backward areas. It has been said that the modern civilization, the development of huge cities and the concentration of economic, cultural and social activities essentially brought a modern phenomenon transport. It can help in the solution of the social problem of slum clearance in crowded cities and determines the migration trends of population. Transport has made the world as global village. All countries are in close contact with each other by

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Swachh Bharat

To absorb all that is beautiful and good from the world and
to give to it all that is beautiful and good within us

Isn't this the meaning of education?

Then why do we sully the world with our waste?

Neat letters and numbers
We learn this from an early age.

Then why do we smudge the environ we script?
We aspire to our right place in the world.

Do we remember that all things around us
must be in their right place all the time?

We want energetic minds to sweep off dead thoughts.

Can we sweep away the litter we surround
ourselves with?

Gandhi ji said I will not let anyone walk through
my mind with dirty feet.

Let us add: Nor through my world

Let us dedicate ourselves to Cleaning India

And join hands with Swachh Bharat
Sanitation, Waste Awareness and
Clean Healthy Habits for All.

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ROLE OF WARANA CO-OPERATIVE MAHILA UDAYOG IN WOMEN EMPOWERMENT

- Dr. D. K. More*, Mr. T. M. Rabade**

Abstract :

Warana Udyog Samuha is an ideal in Warana Co-operative model. It is successful for giving employment to more than 700 women, as a result socio-economic condition of these women has improved qualitatively. Before the establishment of Mahila Udyog Samuha women in these region were victims of illiteracy, ignorance, traditions, customs, in short their condition was backward. Their life was mentality only for "Chul and Mool" (Hearth and Home) They ware housewives only. It has not only provided works to their hands but also has brought social change and economic idependence. It is seen that warnana udyog samuha is doing practical of national policy regarding empowerment of women. In summing, After careful investigation of collected data regarding various matters. It reveals that Warana Mahila Udyog Samuha improve the social economical condition of women in warana region.

Keywords :

Women empowerment, socio-economic condition, decision making, warana region, housewives.

Introduction :

Warana Mahila Udyog Samuha Ltd. has opened a new chapter in the history of women in Warana region. Warana Udyog Samuha is an ideal in Warana Co-operative model. After investigating socio-economic condition of women in Warana region, it is clear that, Socio-economic condition of women is quite different than the women in urban and rural area. These women are mostly needy and coming from nearest villages of Waranagar. Warana Udyog Samuha is successful for giving employment to more than 700 women, as a result socio-economic condition of these women has improved qualitatively. Before the establishment of Mahila Udyog Samuha women in these region were victims of illiteracy, ignorance, traditions, customs, in short their condition was backward. Their life was mentality life was mentality only for "Chul and Mool" (hearth and Home). They were housewives only. Their economic condition was adverse. But with establishment of Mahila Udyog Samuha the situation has changed. This Udyog Samuha provided works to their hand. Now women are participating in every activities of society. They are now shouldering responsibilities of family. Women equalize their shoulder with male in every field. Women are not inferior in any sense than me in every field.

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Abstract of Doctoral Dissertation

Study of Training & Skill Development Program of NGOs to SHGs Movement in Osmanabad District with spl. ref. of SGSY Scheme (2000-06)[1]

SAPKAL H.G.*

I. Introduction

IN THE POST independence period the government of India has launched various schemes for women and child development and like development of Women and Child in Rural Area (DWCRA), Gangakaylyan Yojana (GKY), Jawahar Rozagar Yojana, (JRY) & Training Scheme for Rural Youth for Self – Employment (TRYSEM) for poverty mitigation and welfare of the various downtrodden societies. The development has not reached women epecially, vulnerable, tribal and oppressed women.

Center and state sponsored scheme the "Swaranjayanti Gram Swarozgar Yojana (SGSY) was launched with 75:25 participation respectively in the year 1999 to promote Self Help Group (SHGs). Under this scheme the Government of India (GOI) and Government of Maharashtra (GOM) established SHGs which were promoted by District Rural Development Agency (DRDA) for women below the poverty line (BPL). NGOs approved by DRDA to pursue the objectives of the schemes create awareness about SHGs, improve their skills though training and development programs and enhance technical, generic and life skills empowering women at block and district levels.

The present study focuses on basic training and skill development programs implemented by NGOs; State and central government in the Osmanabad district for women and children. The research was intentionally selected the TSDP area and has also analysed schemes implemented by WCD department of GOI to women empowerment segregation on Blocks and NGOS have been used to assess the performance of the schemes in empowering women.

1 The Thesis was submitted to University of Solapur, in May 2010, for the award of Ph.D. Degree awarded, in 2010, under the supervision of Dr. A. B. Suryawanshi, B.P. Sulakhe Commerce College, Department of Commerce, Barshi, District Solapur, Maharashtra, INDIA.

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Role of University for Developing Standard in Quality Education: with special reference to "Case Study Presentation Standard".

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ABSTRACT.

In this paper, we discuss the Innovative Role of University for preparing learning Standard to understand Entrepreneur Education and Practical Approaches with special references to management science.

If University is a golden Coin, then Education and Education System is the two sides of that golden coin. Innovation is the stimulant for the Education System to changing need & adopt new pattern, ultimately it impact on Education and it starts to change the syllabus, developing new courses for the same.

At one side, Business/Industrial Technological change needs to take care changing pattern of buyers and other side Educational change needs to take care the current requirements of the Business.

Industrial sector & Educational sector both are having their own image, having different culture and different ethics. Although too, both are depends upon each other, and it is important to have otherwise it cannot be having effective innovation on both side. But, while occurrence such innovation, need to take care the image and try to find out the error..?? Try to close the loophole in their innovation..??

For this, we need to treatment on the base where the innovation has start Need to build a structure and standard in Education. So that, the Case study has prepared, developed by the researchers and implemented by the university as per the kind of Course & Subject.

There is Standard for designing the Case Study. There is methodology to prepare the case study We have System to correlate the practical & theoretical approach and develop the Case Study But, we do not have any Standard for presenting and answering of the Case Study.

Here, Teachers have their own ideology to teach the case & Students learn it by their own level of understanding. Students are getting so much confused for presenting the Case in examination and examiners judgment toward case may diverse because of their own ideology. So that, it reflect on marking of the same case presentation is different by examiner to examiner. So that, there is a need to have a Standard format for presenting the case study.

In this paper, we have developed an Optimum "Presentation Standard for Case Study", with consideration Industrial Relation, better learning & evaluation method for the Students.

INTRODUCTION.

The role of university is fundamental job in education and education system, it is vital source of county's intellectual capital and that could become one of the parameter to measure national income, one day. For instance, Japan is considering a new legislation, where intellectual property can be considered as a security against loan.

In this paper, we discussed the importance of the case study and their presentation standard to understand the entrepreneurship/Industrial education & to developing the Intellectual Innovative quality life education.

The major Role of University is to serve only for the Students; every single student of university is the Assets of university and also the Centralized product of any university, so that a university liability is to take care that student's welfare and prospectus by providing them quality education. Generally every university has the same objects, they developing their education by their courses, they try to provide good quality education by adopting renowned faculties, luminaries, engaging workshops, faculty development programs and tried to innovate in their education & education system.

University is the back bone of Education; the quality of education is based and framed by the courses established and provided by the affiliated colleges. As such, with consideration the entrepreneurship education, the learning skills and attitude of intermediates (teacher and learner) have been taken consideration for the innovative development. As we will discussing about the subjects of management science, there are case studies, mini-projects, summer implant training and projects, etc are the luxury stage of the subject course. In Final Semester's Specialization project, Third semester's Implant Training and compulsory asked Case Study in examination plays vital role to understand the altitude of Entrepreneurship Education and Intensity of Industrial System.

With consideration the faculty of management science & commerce, we found that the quality of education and its changing needs is depends upon the Industrial/ Business/ Entrepreneurial requirements. Those requirements could not be constant because they adopting new technology for their Cost, Pries, Product and Innovation. In the faculty of Management science & Commerce we have total 52 & 14 types of courses. In which, the education pattern take some

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Materials Today: Proceedings
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Magnetic Characterization and Instrumentation Setup for Measurement of Co-efficient of Magnetostriction on $Co_{0.9}Ni_{0.1}Fe_{2-x}Mn_xO_4$ Ferrite [illegible]

[illegible] Sula[illegible]

Show more

https://doi[illegible]

Abstract

The present paper reports the [illegible] $Ni_{[illegible]}Fe_{2-x}Mn_xO_4$ (CNFMO) ferrite for x= 0.0 [illegible] 3 and [illegible] setup for the measurement of coefficient [illegible] tostriction [illegible] The efforts towards design, development [illegible] calibration and [illegible] are discuss in the paper. To confirm the [illegible] ness and accuracy of the setup, measurements have carried out on $CoFe_2O_4$ ferrite prepared [illegible] the earlier reports on measurement [illegible] available [illegible] the parent sample are in good agreement [illegible] reported [illegible] for the measurement of λ on $Co_{0.9}Ni_{0.1}Fe_{[illegible]}O_4$ (CNF[illegible] 0.3 and 0.4. To correlate the observed variations of λ, the other physical parameters of these compositions have investigated [illegible] reported [illegible]

Previous Next

Keywords

Magnetostriction [illegible] (FeMn [illegible] actuators; strain gage.

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Changes in Oxalic Acid Content During Leaf Senescence in Sericultural Crop *Morus Alba* Linn

KEYWORDS: Oxalic acid content, *Morus alba* Linn.

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ABSTRACT *Attempt has been made to study changes in the Oxalic acid content during leaf senescence in mulberry (Morus alba Linn.). The leaf senescence was accompanied with the changes in Oxalic acid content of the young, mature and senescent leaves of mulberry cultivars namely M5 (K2), V1 and S36 are recorded in the Figure. It is evident from the figure that, the oxalic acid content in mature leaves is higher than that young leaves of all the three cultivars. In the senescent leaves a reduction in oxalic acid level is noticeable in all the three cultivars.*

INTRODUCTION-

Mulberry (*Morus alba* Linn) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* L. (Ullal and Narasimhanna,1981). Cocoon production depends mainly on nutrient composition of mulberry leaves. (Krishnaswami *et al.*, 1971; Bhuyan, 1981) Health and growth of the larvae, cocoon quality and raw silk quality are influenced by quality of leaf. Since, the physiological status of mulberry leaf is important in determining the nutritional quality; the age of leaf may influence silkworm feeding. Ganga (2003) suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. During present study nutritional constituents of young, mature and senescent leaves from three cultivars of mulberry (viz. M5, V1 and S36) studied has been compared.

MATERIAL AND METHOD -

The oxalic acid content in young, mature and senescent leaves of mulberry were estimated following the method of Abaza *et al.*, (1968) One gram oven dried plant material, 10ml 3N HCl and 65ml double distilled water were taken in a volumetric flask for oxalic acid estimation. The flasks were kept for digesting the plant material for 1hr on boiling water bath. Then flasks were cooled and diluted to 100ml volume and filtered through Whatman No. 1 filter paper. Two aliquots of 50ml extract were placed in 150ml beakers and in each beaker 20ml 6N HCl were added to increase acidity and avoid pectin retention. Then the mixture was evaporated to half volume and filtered through Whatman No. 1 filter paper and precipitate was washed several times with warm double distilled water. To this filtrate 3-4 drops of methyl red indicator (1g methyl red in 100ml alcohol) and then concentrated ammonia solution was added until solution turned faint yellow. Then this solution was heated to 90-100°C carefully on water bath, cooled and filtered to remove interfering ferrous ions containing precipitate. The filtrate was heated to 90-100°C on water bath and then 10ml 5% $CaCl_2$ was immediately added with 20-25 drops of ammonia solution to restore yellow colour. This solution was allowed to settle overnight and on next day, filtered through Whatman Filter Paper No. 44 (ashless). The precipitate was washed several times with double distilled water to make free from Ca (to check whether the ppt if free from Ca^{++}, 3ml of washing filtrate was taken in test tube and it was added with few drops of 5% sodium oxalate. The turbidity indicated presence of Ca^{++} and demanded further washing of ppt). Then filter paper containing ppt was dissolved in hot 1:5 H_2SO_4 and this was diluted to 125ml with double distilled water and transferred to 250 ml conical flask. The content of the conical flask was heated to 90 – 100°C and carefully titrated with 0.05N $KMnO_4$. The percentage of oxalate was calculated by using following formula,

$$\% \text{ of oxalate} = \frac{\text{ml } KMnO_4 \times 0.05 \times 45.02 \times 100}{1000 \times \text{dry weight} \times 50/100}$$

RESULT AND DISSCUSSION-

Oxalic acid content of the young, mature and senescent leaves of mulberry cultivars namely M5 (K2), V1 and S36 are recorded in the Fig.1. It is evident from the figure that, the oxalic acid content in mature leaves is higher than that young leaves of all the three cultivars. In the senescent leaves a reduction in oxalic acid level is noticeable in all the three cultivars. Zindler Frank (1974) stated that aspartate former C_4 monocots accumulate oxalate salt while, malate formers C_4 monocots do not accumulate this organic acid. On the other hand, malate former dicots accumulate oxalic acids. The level of oxalic acid in oxalic acid accumulating species is in the range 7.2 to 9.1 % (Mathams and Sutherland, 1952 and Vityakon and Standal, 1989). It is evident from our observations that, the total oxalic acid content in mulberry leaves is relatively low when compared with that of oxalic acid accumulating species. Oxalic acid is present in two dominant fractions i.e. soluble and insoluble forms. According to Vityakon and Standal (1989), the soluble fractions consist mainly of K- oxalate and Mg- oxalate, while, the dominant cation in insoluble fractions is Ca, suggesting that most of this fraction is Ca- oxalate with small amounts of Mg. Oxalic acid is reported to be synthesized from several compounds in plants and these include oxaloacetate, glycolate, glyoxylate and ascorbic acid (Zindler Frank, 1974; Raven et al., 1982 and Franceschi, 1987). According to Wagner (1981), oxalate is confined to vacuoles and can be used as marker for vacuoles. Oxalic acid is recognized by many plant researchers as a metabolic end product that undergoes little further metabolism. But Franceschi, (1987) found that significant radioactive label from oxalic acid was incorporated into starch in the light. He gives possible explanation that oxalic acid can be decarboxylated and the CO_2 released can be refixed and enters the carbon pool. In some halophytes, oxalic acid represents the major organic anion balancing excess cation content (Waisel, 1972). High oxalate levels in leaves of *Bassia uniflora*, *Chenopodium auricomum*, *Kochia pyrimi-*

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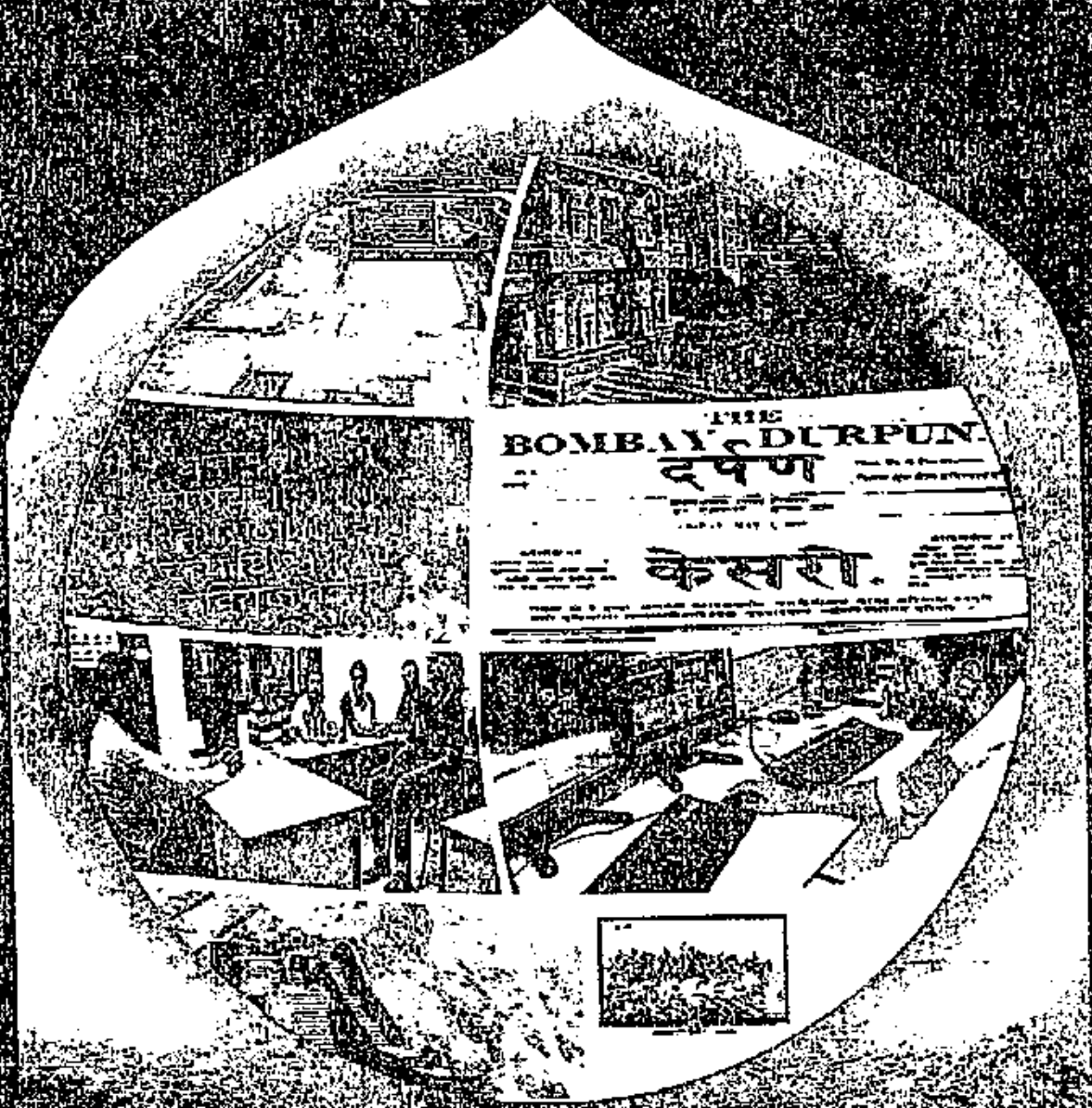

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अनुक्रमणिका

प्राचीन व मध्ययुगीन विभाग

९. किल्ले मकरंदगड

प्रा. सतीष लक्ष्मण स
प्रा. सुनिता हनुमंतराव
श्रीमती मीनलबेन मेहता व
ऑफ आर्टस अॅण्ड कॉमर्स, पार

सातारा जिल्ह्यात लहान मोठे असे ३४ किल्ले असून त्यातील काही प्राचीन म्हणजेच शिलाहार राजवटीत बांधलेले आहेत. चंदनवंदन, नां वैराटगड, वर्धनगड, वासोटा हे पुरातन किल्ले आहेत तर काही किल्ले हे शिवकाळात बांधलेले आहेत.

मकरंदगड हा किल्ला महाबळेश्वर तालुक्यात महाबळेश्वर बाजारपेठेच्या सरळ नैऋत्य दिशेला ११ किलोमीटीवर आहे. भारताच्या भौ नकाशावर या गडाचे स्थान अक्षांश ७३° .३५' पूर्व व रेखांश १७° .५५' उत्तर वर असून त्याची उंची १२३३ मीटर आहे.[१] सह्याद्रीच्या सह्याद्री पर्वताच्या मुख्य रांगेत सातारा जिल्ह्याची ९६ कि.मी.ची सीमा आहे. या ९६ कि.मी लांबीच्या पर्वत श्रेणीमध्ये अनेक शिखरे या शिखर माथ्यावर पाच ठिकाणी किल्ले आहेत. जिल्ह्याच्या वायव्य भागात प्रतापगड हा किल्ला व त्याच्या दक्षिणेस ११ कि.मी मकरंदगड आहे. त्याचबरोबर जंगली जयगड, भैरवगड, प्रचितगड हे किल्लेही या रांगेत आहेत.

मकरंदगडास माल्कमपेठचा (महाबळेश्वर बाजारपेठ) पल्याणपृष्ठ (saddle back) म्हणूनही ओळखले जाते. सह्याद्रीच्या रांगेत ठिकाणी विपल्याण (cols) आणि पल्याण (saddles) निर्माण झाले आहेत. त्यापैकी जे सुगम आहेत, त्याठिकाणी प्रमुख घाटमार्ग तय आहेत. आंबेनळी, पार घाट, हातलोट, आंबोली, तिवरा खिंड, कुंभार्ली घाट, मळाखिंड वगैरे. यातील आंबेनळी व कुंभार्ली घाटातून कोकणात मोठे मार्ग गेले आहेत. आंबोली, उत्तर तिवरा, दक्षिण तिवरा आणि मळा या घाटातून बैलगाड्यांचे मार्ग आहेत, आणि प हातलोट खिंडीतून पाउल वाटा आहेत.[२]

या घाटांच्या संरक्षणासाठी अनेक दुर्गांची निर्मिती करण्यात आली. तैलबैला, कातळ्या घाट, बोचेघोळ, सिंगापुरची नाळ यावर देखं रायगड, लिंगाणा हे किल्ले आहेत. वरंधा घाटावर कावळ्या किल्ला, हातलोट घाटावर मकरंदगड, ढवळ्या घाटावर ढवळ्या किल्ला, आंबोली महादेव गड, तर आंबेनळी व पार घाटावर नियंत्रण ठेवण्यासाठी शिवाजी महाराजांनी प्रतापगड हा किल्ला बांधला.[३]

मकरंदगडाचा इतिहास –

प्रतापगड, मकरंदगड, रायगडचा प्रदेश जावळीच्या प्रदेशात येतो. इसवी सनाच्या सुरूवातीच्या शतकामध्ये जावळी भागावर नावाच्या राष्ट्रकुट राजाची राजवट असताना जावला-वाटिका नावाच्या वाडीचा उल्लेख अविधेयाच्या पांडुरंग पल्ली ताम्रपट शासनात आ पी.दुग्गा यांच्यामते जावळा वाटिका म्हणजेच जावळी होय.[४]

१५ व्या शतकाच्या अखेरपर्यंत जावळी व त्याच्या आसपासच्या प्रदेशावर शिर्के यांची सत्ता होती. चंद्रराव मोऱ्यांनी बिजापूर आदि मदतीने जावली जिंकून घेतली. त्यानंतर नऊ पिढ्यापर्यंत मोरे हे जावलीचे राजे म्हणून कारभार पाहात होते. चंद्रराव मोरे यांचेकडून छत्रप महाराज यांनी २७ जानेवारी १६५६ रोजी जावळी प्रांत हस्तगत केला. मोऱ्यांचा निःपात करून जावळीचा समृद्ध व निबीड अरण्य महाराजांच्या ताब्यात आला. त्यांनी हा भाग सुभा म्हणून मुक्रर केला. या सुभ्याच्या बंदोबस्ताकरीता पार घाटाच्या नाक्यावर प्रतापगड ४ सप्टेंबर १६५६ रोजी बांधून पूर्ण केला.[५]

मकरंदगड हा किल्ला देखील १६५६ मध्येच प्रतापगडाबरोबर शिवरायांनी बांधला. मकरंदगडावरून शिवकाळात वासोटा व प्रतापग ठेवता येत असे. शिवकाळात मकरंदगड, हा किल्ला प्रतापगडाचा सहायक किल्ला म्हणून काम करीत होता. तसेच हातलोट घाटा ठेवण्याचे काम हा किल्ला करीत होता. दि. १४ मे १८१८ रोजी इंग्रजांनी हा किल्ला प्रतापगडाबरोबरच ताब्यात घेतला.

महाबळेश्वरमधील बॉम्बे पॉईंटवरून मकरंदगडाचा आकार घोड्याच्या खोगीरासारखा दिसतो. म्हणून महाबळेश्वरकर त्यास सॅडल ओळखतात.

मकरंदगडाकडे जाण्यासाठी महाबळेश्वरहून पार मार्गे जावे लागते. पार गावामध्ये श्री रामवरदायीनी मंदिर आहे. ही रामवरदायीनी चंद्रराव मोऱ्यांची कुलदेवता होती. पारपासून पुढे हातलोट येथे जाताना, कोयना नदीवर बांधलेला पुल शिवाजी महाराज यांनी गडा घोणसपूर नावाचे गाव आहे. तेथे स्वयंभू शिवलिंग असलेले शिवमंदिर आहे. येथील वस्ती अत्यंत विरळ असून ही वस्ती जंगम लो जंगम घोणसपूर येथील शिवमंदिराची व मकरंदगडावर असणाऱ्या मल्लीकार्जुनाच्या पुजेसाठी नियुक्त केले असावे, कारण घोणसपूर त्यांना पूर्वापार इनाम म्हणून मिळाली आहे. हा संपूर्ण प्रदेश डोंगराळ तसेच तीव्र उताराचा असल्यामुळे व पूर्ण दाट जंगल असल्याने लोकसंख्या विरळ आहे. पार वाडा कुंभरोशी ही ग्रामीण भागातील गावे आहेत. त्यांचा व्यवसाय शेती व पशुपालन आहे. चतुरबेटाव

दर्शनचा रस्ता लोकांनी श्रमदानाने तयार केला आहे. तथापि वन विभागाकडून त्यास परवानगी नाही. आजही या भागातील लोक पायवाटेने चालत जाऊन आपल्या गरजा, म्हणजे दवाखाना, बाजारहाट करताना दिसतात.

घोणसपूरहून पुढे गड चढून गेल्यानंतर मकरंदगडाचा मुख्य दरवाजा लागतो. सध्या तो पूर्ण ढासळलेल्या अवस्थेत आहे. गडाच्या माथ्यावर गेल्यानंतर गडाचे दोन भाग दिसतात. नैऋत्येकडील गडास मकरंदगड तर वायव्येकडील गडास मधूगड असे म्हणतात. परंतु त्यावर जाण्यास रस्ता नाही. मकरंदगडावर आग्नेयेकडे श्री मल्लीकार्जुन शंकराचे पुरातन मंदिर आहे. मंदिरातील शिवलिंगाची स्थापना शिवाजी महाराज यांनी केली आहे.[८] सध्या सर्व तटबंदी व प्रवेशद्वार पडक्या अवस्थेत आहे. मंदिराच्या मागे १५० फुट खाली उतरून गेल्यानंतर समोर खडकात फोडून तयार केलेले पाण्याचे तळे आहे. परंतु हे तळ्याकडे जाण्यासाठी असणारा रस्ता अत्यंत दुर्गम असा आहे. मंदिराच्या उंच ठिकाणाहून पूर्वेला कोयना खोरे व महाबळेश्वरचे दर्शन घडते.

या परिसरातील निसर्गसौंदर्य व घनदाट जंगल यामुळे पर्यटनासाठी हा किल्ला अत्यंत महत्त्वपूर्ण व आनंद देणारा आहे. इतिहास भूगोल व अर्थशास्त्र विषयांच्या अभ्यासकांसाठी हा किल्ला, शेती व्यवसाय व मध्ययुगीन जलव्यवस्थापन यांसाठी अत्यंत महत्त्वाचा आहे.

संदर्भ-

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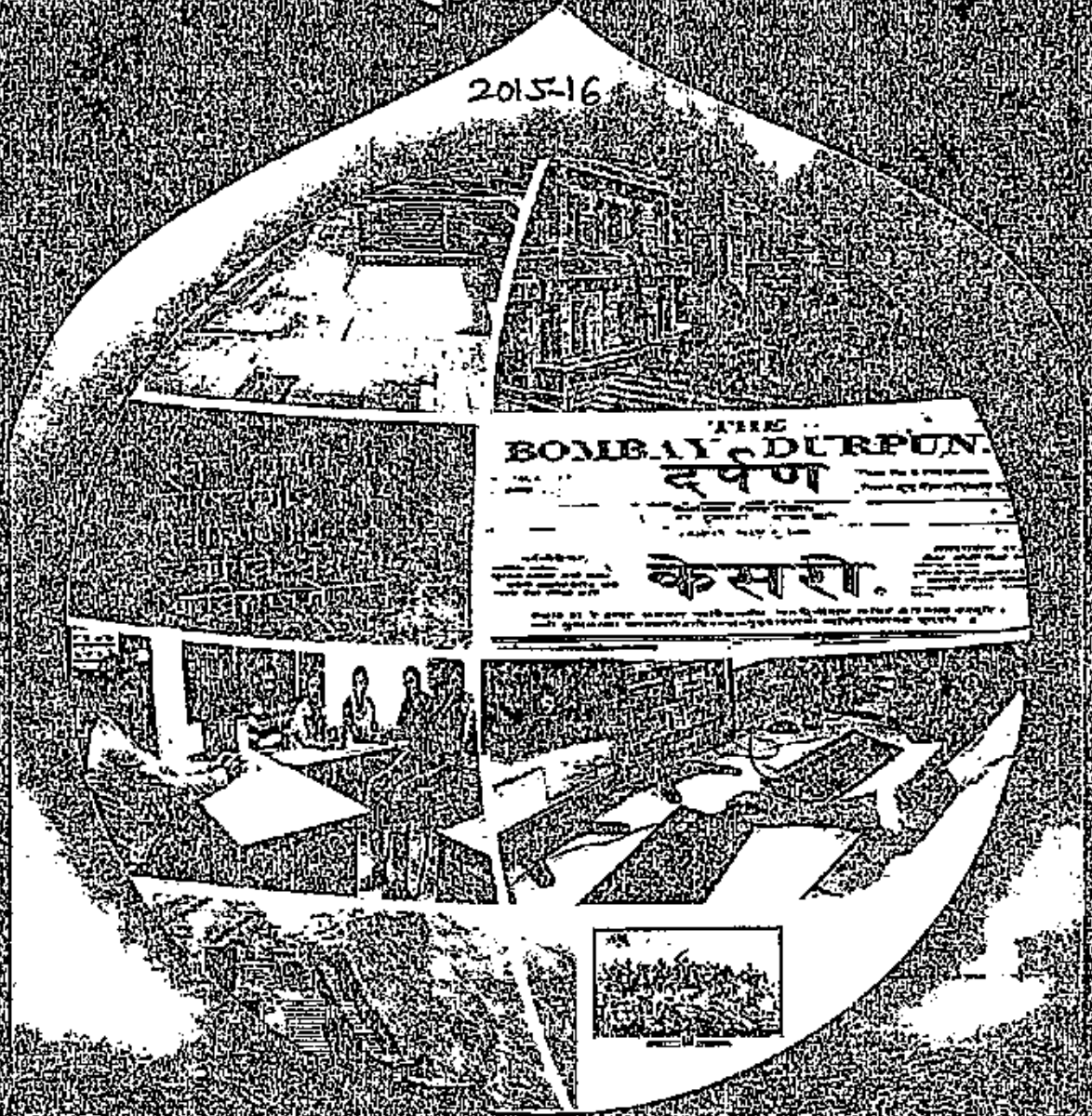

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संशोधन

2015

अनुक्रमणिका

प्राचीन व मध्ययुगीन विभाग

९. किल्ले मकरंदगड

प्रा. सतीप लक्ष्मण खु
प्रा. सुनिता हनुमंतराव
श्रीमती मीनलबेन मेहता कॉ
ऑफ आर्टस अॅण्ड कॉमर्स, पाच

सातारा जिल्ह्यात लहान मोठे असे ३४ किल्ले असून त्यातील काही प्राचीन म्हणजेच शिलाहर राजवटीत बांधलेले आहेत. चंदनवंदन, नांदा बैराटगड, वर्धनगड, वासोटा हे पुरातन किल्ले आहेत तर काही किल्ले हे शिवकाळात बांधलेले आहेत.

मकरंदगड हा किल्ला महाबळेश्वर तालुक्यात महाबळेश्वर बाजारपेठेच्या सरळ नैऋत्य दिशेला ११ किलोमीटीवर आहे. भारताच्या भौगो नकाशावर या गडाचे स्थान अक्षांश ७३° .३५' पूर्व व रेखांश १७° .५५' उत्तर वर असून त्याची उंची १२३३ मीटर आहे.[१] सह्याद्रीच्या स सह्याद्री पर्वताच्या मुख्य रांगेत सातारा जिल्ह्याची ९६ कि.मी.ची सीमा आहे. या ९६ कि.मी लांबीच्या पर्वत श्रेणीमध्ये अनेक शिखरे अ या शिखर माथ्यावर पाच ठिकाणी किल्ले आहेत. जिल्ह्याच्या वायव्य भागात प्रतापगड हा किल्ला व त्याच्या दक्षिणेस ११ कि.मी अं मकरंदगड आहे. त्याचबरोबर जंगली जयगड, भैरवगड, प्रचितगड हे किल्लेही या रांगेत आहेत.

मकरंदगडास माल्कमपेठचा (महाबळेश्वर बाजारपेठ) पल्याणपृष्ठ (saddle back) म्हणूनही ओळखले जाते. सह्याद्रीच्या रांगेत ठिकाणी विपल्याण (cols) आणि पल्याण (saddles) निर्माण झाले आहेत. त्यापैकी जे सुगम आहेत, त्याठिकाणी प्रमुख घाटमार्ग तया आहेत. आंबेनळी, पार घाट, हातलोट, आंबोली, तिवरा खिंड, कुंभार्ली घाट, मळाखिंड वगैरे. यातील आंबेनळी व कुंभार्ली घाटातून दे कोकणात मोठे मार्ग गेले आहेत. आंबोली, उत्तर तिवरा, दक्षिण तिवरा आणि मळा या घाटातून बैलगाडयांचे मार्ग आहेत, आणि पा हातलोट खिंडीतून पाउल वाटा आहेत.[२]

या घाटांच्या संरक्षणासाठी अनेक दुर्गांची निर्मिती करण्यात आली. तैलबैला, कातळ्या घाट, बोचेघोळ, सिंगापुरची नाळ यावर देखरे रायगड, लिंगाणा हे किल्ले आहेत. वरंधा घाटावर कावळ्या किल्ला, हातलोट घाटावर मकरंदगड, ढवळ्या घाटावर ढवळ्या किल्ला, आंबोली महादेव गड, तर आंबेनळी व पार घाटावर नियंत्रण ठेवण्यासाठी शिवाजी महाराजांनी प्रतापगड हा किल्ला बांधला.[३]

मकरंदगडाचा इतिहास –

प्रतापगड, मकरंदगड, रायगडचा प्रदेश जावळीच्या प्रदेशात येतो. इसवी सनाच्या सुरूवातीच्या शतकामध्ये जावळी भागावर नावाच्या राष्ट्रकुट राजाची राजवट असताना जावळा-वाटिका नावाच्या वाडीचा उल्लेख अभिधेयाच्या पांडुरंग पल्ली ताम्रपट शासनात आह पी.दृगुप्ता यांच्यामते जावळा वाटिका म्हणजेच जावळी होय.[४]

१५ व्या शतकाच्या अखेरपर्यंत जावळी व त्याच्या आसपासच्या प्रदेशावर शिर्के यांची सत्ता होती. चंद्रराव मोऱ्यांनी विजापूर आदिल मदतीने जावली जिंकून घेतली. त्यानंतर नऊ पिढ्यापर्यंत मोरे हे जावळीचे राजे म्हणून कारभार पाहात होते. चंद्रराव मोरे यांचेकडून छत्रपती महाराज यांनी २७ जानेवारी १६५६ रोजी जावळी प्रांत हस्तगत केला. मोऱ्यांचा निःपात करून जावळीचा समृद्ध व निबीड अरण्या महाराजांच्या ताब्यात आला. त्यांनी हा भाग सुभा म्हणून मुक्रर केला. या सुभ्याच्या बंदोबस्ताकरीता पार घाटाच्या नाक्यावर प्रतापगड ४ सप्टेंबर १६५६ रोजी बांधून पूर्ण केला.[५]

मकरंदगड हा किल्ला देखील १६५६ मध्येच प्रतापगडाबरोबर शिवरायांनी बांधला. मकरंदगडावरून शिवकाळात वासोटा व प्रतापगड ठेवता येत असे. शिवकाळात मकरंदगड, हा किल्ला प्रतापगडाचा सहायक किल्ला म्हणून काम करीत होता. तसेच हातलोट घाटाव ठेवण्याचे काम हा किल्ला करीत होता. दि. १४ मे १८१८ रोजी इंग्रजांनी हा किल्ला प्रतापगडाबरोबरच ताब्यात घेतला.

महाबळेश्वरमधील बॉम्बे पॉईंटवरून मकरंदगडाचा आकार घोड्याच्या खोगीरासारखा दिसतो. म्हणून महाबळेश्वरकर त्यास सॅडल ओळखतात.

मकरंदगडाकडे जाण्यासाठी महाबळेश्वरहून पार मार्गे जावे लागते. पार गावामध्ये श्री रामवरदायीनी मंदिर आहे. ही रामवरदायीनी चंद्रराव मोऱ्यांची कुलदेवता होती. पारपासून पुढे हातलोट येथे जाताना, कोयना नदीवर बांधलेला पुल शिवाजी महाराज यांनी गडाच्य घोणसपूर नावाचे गाव आहे. तेथे स्वयंभू शिवलिंग असलेले शिवमंदिर आहे. येथील वस्ती अत्यंत विरळ असून ही वस्ती जंगम लोव जंगम घोणसपूर येथील शिवमंदिराची व मकरंदगडावर असणाऱ्या मल्लीकार्जुनाच्या पुजेसाठी नियुक्त केले असावे, कारण घोणसपूर येथ त्यांना पूर्वापार इनाम म्हणून मिळाली आहे. हा संपूर्ण प्रदेश डोंगराळ तसेच तीव्र उताराचा असल्यामुळे व पूर्ण दाट जंगल असल्याने लोकसंख्या विरळ आहे. पार वाडा कुंभरोशी ही ग्रामीण भागातील गावे आहेत. त्यांचा व्यवसाय शेती व पशुपालन आहे. चतुरबेटावर

दर्शनचा रस्ता लोकांनी श्रमदानाने तयार केला आहे. तथापि वन विभागाकडून त्यास परवानगी नाही. आजही या भागातील लोक पायवाटेने चालत चालून आपल्या गरजा, म्हणजे दवाखाना, बाजारहाट करताना दिसतात.

घोणसपूरहून पुढे गड चढून गेल्यानंतर मकरंदगडाचा मुख्य दरवाजा लागतो. सध्या तो पूर्ण ढासळलेल्या अवस्थेत आहे. गडाच्या माथ्यावर गेल्यानंतर गडाचे दोन भाग दिसतात. नैऋतेकडील गडास मकरंदगड तर वायव्येकडील गडास मधूगड असे म्हणतात. परंतु त्यावर जाण्यास रस्ता नाही. मकरंदगडावर आग्नेयेकडे श्री मल्लीकार्जुन शंकराचे पुरातन मंदिर आहे. मंदिरातील शिवलिंगाची स्थापना शिवाजी महाराज यांनी केली आहे.[८] गडाच्या सर्व तटबंदी व प्रवेशद्वार पडक्या अवस्थेत आहे. मंदिराच्या मागे १५० फुट खाली उतरून गेल्यानंतर समोर खडकात फोडून तयार केलेले पाण्याचे तळे आहे. परंतु हे तळ्याकडे जाण्यासाठी असणारा रस्ता अत्यंत दुर्गम असा आहे. मंदिराच्या उंच ठिकाणाहून पूर्वेला कोयना खोरे व महाबळेश्वरचे दर्शन घडते.

या परिसरातील निसर्गसौंदर्य व घनदाट जंगल यामुळे पर्यटनासाठी हा किल्ला अत्यंत महत्त्वपूर्ण व आनंद देणारा आहे. इतिहास भूगोल व वंशशास्त्र विषयांच्या अभ्यासकांसाठी हा किल्ला, शेती व्यवसाय व मध्ययुगीन जलव्यवस्थापन यांसाठी अत्यंत महत्त्वाचा आहे.

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कित्ता, पृ. ४.

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Information and Communication Technology (ICT) as a tool for Marketing Self Help Groups Products

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Abstract

In this era of technology and recent launch of Digital India Program by Government of India which is well supported by Tata Trust and Google with launch of initiative named "Internet Saathi", has triggered [illegible] by making them internet literate. Rural women especially associated with Self Help Groups can be benefited with such initiatives. In India, most of the SHGs are following their traditional marketing policies and practices. This is mainly due to lack of awareness of currently available marketing trends

Information and communication technology (ICT) tools have been widely used by all the levels of enterprises to effectively and economically market their products. SHGs can also leverage the power of these ICT tools. Apart from basic ICT tools like Television and Radio, Smart phones with internet connectivity have also reached all the corners of rural areas.

Many SHGs (Rural and Urban) are supported by NGOs and other private organizations which provide various ICT related training and awareness program for them, but still there is gap in ICT enabled marketing techniques and marketing techniques adopted by SHGs.

In view of this, the present paper focuses use of ICT tools to promote products produced by SHG.

It proposes use of various ICT tools which can be used for different marketing functions by various levels of stakeholders of SHGs.

Keywords: Information and communication technology (ICT), Marketing, Self Help Groups (SHG).

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Impact of Demonetization on Small Scale Industry Units: Special Reference to Marathwada Region

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Abstract: Demonetization is one of the imperative devices utilized by the legislature of India to handle the hindrance basically named as dark cash and in addition the other thought process as to expand the effect of plastic cash and E – Transaction inside the business and for different exercises. Indian economy is one of the quickest developing economies on the planet and the arrangements and standards being ventured up by the administration considered very in charge of the any exceptional change in the development of economy. Small scale enterprises go about as the spine Nation. The monetary improvement of the Nation broadly relies on the status of this Small scale Unit. IN this paper we are going to examination the effect of demonetization on Indian economy and to break down the progressions and motivation interface with the demonetization

Keywords: Small Scale Industries, Demonetization, Digital Money

Introduction: Business enterprise alludes to a procedure of activity; a business person embraces to set up the endeavor. In a creating nation like India, small scale business enterprise assumes a huge part in financial advancement of the economy. It has risen as a dynamic and energetic part of the economy. Small scale retailing is the most well-known strategy for enterprise generally received in Kerala. This retailing comprises of general stores, claim to fame shops, second hand merchandise shop, road slow down holders and so on. Recently, small scale industries confronted a few here and now interruptions. Among them, the issues caused by demonetization strategy were observed to be huge. The most recent demonetization in India was the sudden declaration by Prime Minister of India on eighth November at 8:30 pm that Rs.500 furthermore, RS.1000 notes would not be legitimate delicate from midnight of eighth November 2016. The RBI issued 2000 rupees notes and new notes of 500 rupees which were set available for use since 10 November 2016. This measure has been taken by the PM trying to address the build up against defilement, dark cash and fake notes. This move is required to rinse the formal monetary framework and dispose of dark cash from the same.

Demonetization is essentially a demonstration of stripping the cash unit from its lawful status. It is for the most part a demonstration of changing the national money of any country. There might be any reason of demonetization, predominantly to bring into account the unaccounted salary of the Nation.

History of Demonetization:

Indian history of demonetization has been very intriguing because of its political effect. It is evident that the demonetization has turned out to be a Healthy advance taken by any Govt. which just advantages to

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Development of a solvent extraction system with 4-heptylaminopyridine for the selective separation of palladium(II) from synthetic mixtures, catalysts and water samples

B.T. Khogare, M.A. Anuse, P.B. Piste & B.N. Kokare

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Development of a solvent extraction system with 4-heptylaminopyridine for the selective separation of palladium(II) from synthetic mixtures, catalysts and water samples

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ABSTRACT

A newly reported chelating agent, 4-heptylaminopyridine has been used for selective extraction and separation of palladium(II) from salicylate media at pH 0.5 is studied. The effect of different parameters such as pH, weak organic acid concentration, extractant concentration, equilibrium time, diluents, and stripping agent has been evaluated. Successful stripping of palladium(II) from the loaded organic phase is achieved with 6.0 M ammonia (2 × 10 mL) solution. The method affords separation of palladium(II) from binary and ternary mixtures and is applicable to the analysis of synthetic mixtures, alloys, catalysts, and water samples. The method is simple, selective, cost effective, and reproducible.

Keywords: Solvent extraction; Palladium(II); 4-Heptylaminopyridine; Water samples

1. Introduction

Platinum group metals (PGMs) are of great practical importance and they have a wide range of industrial applications, e.g. as Catalysts in organic processes, value-added components in metal alloys and the vehicle catalytic converter system. They are used in the chemical, pharmaceutical, petroleum, electronic industries, and jewelry making. These wide applications of PGMs, especially palladium(II), have increased the palladium demand by 3.5% in 2007 to a total of 6.84 million ounces, whereas the natural resources are limited [1,2]. The use of palladium and platinum as catalyst in the catalytic converters of cars and their eventual spread in the environment and also the accumulation in wastewater by rain intensified environmental concerns. Since palladium has no known biological role, all palladium compounds should be regarded as highly toxic [3] similarly, palladium(II) can bind to thiol containing amino acids, proteins, DNA, and several biomolecules and adversely affect the cellular processes [4]. Therefore, the palladium(II) is strictly limited to be 5–10 ppm level by the European Agency for the Evaluation of Medicinal products [5]. The effective palladium(II) extraction and recovery from both natural ore and industrial waste are quite important from the

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मोगल मनसबदार कर्णसिंह

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प्रास्ताविक

मोगल साम्राज्याचा संस्थापक बाबर व त्याचा उत्तराधिकारी हुमायुन यांच्या नंतर सिंहासनावरूढ झालेला मोगल बादशाह अकबराने भारतातील साम्राज्य सदृढ बनविण्यासाठी भारतामधील प्रामाणिकपणा व युध्द कौशल्य हे गुण असलेल्या राजपुतांना मोगल साम्राज्याचे संरक्षक बनविण्याची किमया साधली. तसेच विलक्षण अशी मनसबदारी व्यवस्था निर्माण केली. या अंतर्गत राजपुतांना स्वत:चे वंशपरंपरागत क्षेत्र 'वतन जागिर' म्हणून देत असतानाच त्यांच्या योग्यतेनुसार अतिरिक्त वेतन म्हणून जागिर - ए - तनख्वाह सुद्धा दिल्यामुळे राजपुतांचे वैयक्तिक हितसंबंध देखील मोगल साम्राज्याच्या हितसंबंधाशी जोडून घेतले. तसेच नियुक्तीचे अधिकार बादशाहकडे असल्यामुळे मोगल बादशाहाचे सर्वोच्चत्व देखील आबाधित राखले. या पार्श्वभुमीवर प्रस्तुत शोध निबंधामध्ये प्रत्यक्ष स्थलदर्शन, मौखिक माहितीसह दुय्यम स्वरूपाच्या लिखित साधनाचा आधार घेतलेला आहे. हि या शोधनिबंधाची मर्यादा आहे.

कर्णसिंह यांचा जन्म इ.स. १०-जुलै १६१६ मध्ये झाला. १३ ऑक्टोबर १६३१ रोजी त्यांना बिकानेरचे सिंहासन मिळाले. पर्यायाने मोगल बादशाहाच्या सेवेस प्रारंभ झाला. इ.स. १६५२ मध्ये ३००० जात व २००० सवार एवढा त्यांचा मनसब होता १. दाराशुकोह व औरंगजेब यांच्यातील उत्तराधिकाराच्या लढाईत त्यांचे दोन मुले पद्मसिंह व केसरीसिंह औरंगजेबाच्या सोबत होते २.

कर्णसिंह हे सप्टेंबर १६६७ च्या शेवटी मुअज्जमच्या मदतीसाठी दक्षिणेत जाण्याचा आदेश मिळाल्यामुळे औरंगाबादमध्ये पोहचले. औरंगाबादमध्येच त्यांना मनसबदारातील नवीन पद व काही जागिर मिळाली. तसेच मुअज्जम कडून आर्थिक सहाय्य सुद्धा मिळत होते.३

ख्यातांमध्ये उल्लेख आहे की, एकदा मोगल बादशाहाने सर्व राजपुतांना धर्मांतरीत करण्याच्या हेतुने सिंधु नदीपार घेवून जाण्यासाठी आक्रमणाच्या निमित्ताने योजना बनविली. बादशाह समवेत राजपुत मार्गस्थ असताना अटक येथे मुक्काम पडला. अटक येथे कर्णसिंहाची ओळख असलेल्या साहेबच्या सैयद फकीर कडून बादशाहाच्या सर्व राजपुतांचे धर्म परिवर्तन करणा-या योजणेची माहिती मिळाली. या माहिती वर राजपुत राजांचा विचार विनिमय होवून तोडगा असा निघाला की, मुस्लिम सैन्यास प्रथम सिंधु नदी ओलांडण्यास उकसवायचे आणि सर्व राजपुत राजांनी आपआपल्या स्वदेशी परत जाण्याचे. ठरल्याप्रमाणे ते मुस्लिम सैन्यास म्हटले की, आम्ही प्रथमत: सिंधू पार करणार. मुस्लिमांस हा आपला अपमान वाटला व त्यांनी यास आपला अपमान समजुन प्रथमत: सिंधू पार केली. याचवेळी आजमेरच्या जयसिंहराजाच्या आईच्या निधनाचे वार्तमी मिळाल्यामुळे राजपुतराजे आणखी बारा दिवस तेथेच थांबून राहिले. या बारा दिवसाच्या मुक्कामी राजपुत राजांनी असे ठरविले की, ज्या नावात्यांना सिंधू पार करण्यासाठी पाठवण्यात येणार आहेत, त्यांना तोडून टाकायचे, म्हणजे स्वदेशी परत जाण्याच्या वेळी शाही सैन्य त्यांचा पाठलाग करू शकणार नाही. सर्वानुमते या योजनेचे नेतृत्व कर्णसिंहाकडे आले. त्यांना नजरे भेट करून 'जालंधर बादशहा' हि उपाधी देवून गौरव देखील केला. कर्णसिंहाने नावावर प्रथम कुऱ्हाड मारली व सर्व नावांना तोडून नष्ट केले. तसेच साहेबच्या सैयद फकीरास दरवर्षी प्रतिघरामधून एक पैसा वसुल करण्याचा अधिकार देखील मिळाला. नंतर सर्व राजे आपाआपल्या स्वदेशाकडे निघून गेले. ४

या घटनेच्या परिमाणस्वरूप मोगल बादशहाने नाराज होऊन बिकानेरवर सैन्य पाठविले. त्यावेळी देशनोक येथे जाऊन कर्णसिंहाने श्री करणी देवीची प्रार्थना केली. औरंगजेब बादशहाने कारणा शिवाय बिकानेरवर पाठवलेले सैन्य

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Changes in The Activity of Enzyme Atpase (E.c. 3.6.1.3) During Leaf Senescence in Sericultural Crop Morus Alba Linn.

Botany

KEYWORDS : Enzyme ATPase, Morus alba Linn.

[illegible]

ABSTRACT

[illegible]

INTRODUCTION-

The important agro industry, sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* Linn. (Ullal and Narasimhanna, 1981). Cacoon production depends mainly on nutrient composition of mulberry leaves (Krishnaswami *et al.,* 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cacoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving varities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al.,* 1999). Ganga (2003) suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. Mulberry leaves are extensively utilized as silkworm feed, these appears an excellent forage for feeding and supplementing ruminants, in fact there are several places where mulberry leaves are used traditionally as feed in mixed forage diets for ruminats and there have also been several studies on the use of mulberry for cows and other domestic animals (Sanchez, 2000). A team of nutritional scientists in India has even suggested that the powdered leaves of white mulberry (*Morus alba* L.) might make good, nutritious, non toxic and low cost food ingredients for *Paratha*, the traditional food item of breakfast and dinner of the Indian diet (Srivastava *et al.,* 2003). The leaves also are reported to have some medicinal value and mulberry leaf tea is taken in some parts of India (Zepada, 1997 and Bellini *et al.,* 2000). Due to all the above reasons, understanding the study of senescence process of this economically important leaf material was thought worthwhile. For this purpose three promising cultivars of mulberry (M5 (K2), V1 and S36) have been selected. During present study nutritional constituents of young, mature and senescent leaves from three cultivars of mulberry (viz. M5, V1 and S36) studied has been compared. Hence, in order to have further insight in to the above problem, a fate of activity of enzyme ATPase during leaf senescence in the three cultivars of mulberry (viz.M5 (K2), V1 and S36) has been studied in the present investigation.

MATERIAL AND METHOD -

Activity of enzyme ATPase (E.C. 3.6.1.3) was determined following the method of Jha and Sinha (1989). One gram leaf material (of different categories) of each cultivar was homogenized in 10 ml cold tris-HCl buffer (0.1M, pH 7.5). The extract was filtered through a four layered muslin cloth and centrifuged at 5000 rpm for 10 minutes and the supernatant was used as the source of enzyme. Assay mixture was prepared by adding tris-HCl buffer (pH 7.5), ATP (3mM) and enzyme in equal volumes. The reaction was terminated by adding 10 % TCA after appropriate time. The resultant reaction mixture was centrifuged and the supernatant was analyzed for inorganic phosphate following method of Sekine *et al.* (1965). One ml reaction mixture and 2 ml 2N HNO_3 were mixed with 1 ml of freshly prepared Molybdate Vanadate reagent. Volume was made to 10 ml with distilled water. After 20 minutes absorbance was measured at 420 nm against a blank prepared without phosphorus source. Phosphorus content was calculated by using a standard curve of phosphorus (0.025mg. ml^{-1}). Enzyme activity was expressed µ mole phosphorus h^{-1} mg^{-1} protein.

RESULT AND DISSCUSSION-

The changes in the activity of enzyme ATPase during leaf senescence in the three mulberry cultivars namely M5 (K2), V1 and S36 is shown in Fig.1. It is evident from the figure that, the young leaves of three cultivars have the highest enzyme activity as compared to mature and senescent leaves. All the three categories of leaves of cultivar V1 show the highest enzyme activity as compared to the corresponding leaf categories in cultivars M5 (K2) and S36. In the senescent leaves of all the three cultivars a general decline in the enzyme activity is noticeable. In the biological systems existing on this planet, Adenosine triphosphate (ATP) is one of the most important compounds. This is due to the fact that the cellular energetic depends on the state of this compound. Hence, the most of turnover of this compound is of paramount significance in deciding the proper functioning of any cell. It is obvious that ATP synthase, the enzyme responsible for ATP synthesis and ATPase, the enzyme responsible for ATP breakdown are very important in the bioenergetics of the cell. The plasma membrane H^+ATPase (P-type H^+ ATPase) is the principle primary active transport of plant cells. Vacuolar membrane also contain a vacuolar type (V-type H^+ ATPase) which catalyses proton pumping. Such enzymes are also present in membranes from ER, Golgi bodies and coated vesicles of plant cells. ATPases from all sources have a complex multisubunit structure (Sanders and Bethke, 2000). The plasma membrane ATPase is specific to Mg^{++} as well as Mn^{++} ions. Spanwick, (1981) reported that in plants, plasma membrane ATPase play a role in acidification of cell walls, regulation of cytoplasmic pH and maintenance of the proton motive force. Palmgren, (1991) noted that when plant tissues are exposed to plant growth factors such as plant hormones, light and pathogens the activity of plasma membrane H^+ATPase is altered rapidly. Abscisic acid has been reported to accelerate the onset and enhance the magnitude of the increase in ATPase activity which accompanies leaf senescence (De Leo and Sacher, 1970). Decompartmentation of the vacuolar ATPase has been proposed to provide a mechanism for Pi mobilization from endogenous phosphorylated compounds of senescent plant tissue (De Leo and Sacher, 1970). But one cannot ignore the fact that, there are many other phosphatases present in the plant cells who can contribute to the mobilization of phosphorus from senescent leaves. The energy charge of the senescent tissue is also an important factor since, it regulates many metabolic processes in the cells. The available analytical data shows that in senescing fruits and leaves, the level of ATP increases sharply during the respiratory rise; (Solomos and Laties, 1976; Malik

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PROPOSED 'GOODS AND SERVICES TAX' IN INDIA

Dr. D.K. More* Dr. T. M. Rabade**

INTRODUCTION :

VAT (Value Added Tax) was introduced in all over country in 2006 and GST is the logical conclusion of the sucessful introduction and imposition of Value added Tax in India. In its standard format GST is a single tax replacing all the indirest taxes and collected by a single authority but in our country the system of Govrernance is Federal and both centre and states have the power to collect indirect taxes in one form or another. Hence a formula is developed to introduce a compromised GST with the consent of the state hence we can call it Indian format of GST.

First it was referred in 2006 in the Budget speech of the Finance Minister that 'GST will be introduced in India from 1st. April 2010 but later for one or other reasons it was postponed from year and it is evident from this delay that it is not easy for the lawmakers to introduce GST in our country and now since 2016 is declared as GST introduction year, let us see what is Indian format of the GST and further what is the basic characteristics of India GST, the problems associated with it and further what is the possibility that the 2016 deadline will be met.

The reference of GST was first made in Indian Budget in 2006 by Mr. P. Chidambaram as a single centralized Indirect Tax in which tax is to be collected by centre and then it is to be distributed between centre and States.

Hence a compromise is made on Dual GST in this respect in which both states and centre will impose and collect tax a single transaction of sale and service in the form of State Goods and service tax "SGST" and Central Goods and service tax "CGST".

GST AND VAT :

Vat was introduced in our country in 2005 and 2006 in almost all the states and Goods and Service Tax is the logical extension of the VAT. Vat will be converted in SGST along with taxing the Services also at the state level and it will be called "State Goods and Service Tax".

Practically all the state indirect taxes will be covered by GST and will be merged with SGST but still there are some differences between states and centre about Entry tax. Some of the States are imposing entry tax in lieu of actroi and giving the revenue from entry tax to the Local bodies hence they are against this is accepted then it will certainly further distort the already compromised GST.

At present all the states are covered by VAT hence it they will not have any procedural problem in converting the VAT into SGST.

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Diversity and Abundance of Zooplankton in Sukhna Reservoir from Aurangabad District, Maharashtra.

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Abstract: Zooplankton is integral components of aquatic food webs and contributes significantly to aquatic productivity in freshwater ecosystem. The present study carried out to understand the diversity and abundance of zooplankton at Sukhna reservoir, Aurangabad district, Maharashtra from February 2008 to January, 2009. Samples were collected using plankton net 64µ mesh size and sample analysis was carried out with standard keys of zooplankton. Result indicates that 22 species belonging to 4 different groups were recorded. Among them, rotifers comprise of 8 species, cladocerans 7, Copepoda 5 and Ostracoda 2. Diversity and abundance of rotifers and cladocerans and Occurrence of genera like *Branchionus, Diaphanosoma* and *Chydrous* indicating the eutrophic condition of the lake.

Keywords: *Sukhana reservier, Zooplankton diversity, Eutrophic condition etc*

1 Introduction

Diversity of Zooplankton is the most essential ecological parameter in the water quality assessment of rivers and reservoirs. Zooplankton play a vital role in aquatic ecosystem, they form an important link in the food chain and are capable of affecting the entire aquatic life. (Neves et al; 2003). Most of the plankton organisms are cosmopolitan in distribution (Mukhrajee, 1997). Abundance of plankton species in a water body is an indicator of biological productivity. Further, the qualitative and quantitative abundance of plankton in a water body are of great importance for imposing sustainable management policies as they vary from location to location and aquatic systems within the same location with similar ecological conditions. Hence the present study was undertaken to study the zooplankton diversity and abundance in Sukhna reservoir from Aurangabad district, Maharashtra.

2 Materials and Methods

Sukhna reservoir is situated in hilly region are having large catchment area containing

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Research Article

Changes in free proline contents during leaf senescence in taxonomic crop *Morus alba* Linn.

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ABSTRACT

The feeding of the silkworms on the leaf material of mulberry is one of the significant components of sericulture. Thus the leaf quality has an obvious impact on the performance of silkworms. Leaf senescence marks one of the critical phase in the life of leaves which is genetically programmed and environmentally modulated event. Hence an attempt has been made to study the changes in levels of free proline in young, mature and senescent leaves of mulberry cultivars viz. M5 (K2), V1 and S36 are recorded. The young leaves of all the three cultivars contain higher free proline level as compared to mature and senescent leaves. In senescent leaves a marked decline in free proline level is noticed in all the three cultivars.

Keywords: Free proline, *Morus alba* Linn.

INTRODUCTION

The soil environment is a major sink for multitude of chemicals and heavy metals, which inevitably leads to environmental contamination problems. On being discharged into soil, the heavy metals get accumulated and may disturb the soil ecosystem, plant productivity, and also pose threat to human health and environment. Being a serious threat to biota due to their acute toxicity and non biodegradable nature, heavy metal contamination of soil has become an increasing problem worldwide. Among these heavy metals cadmium and chromium are of increasing concern due to their indiscriminate use and wide presence in the environment. Cd is one of the most toxic heavy metals in plants due to its solubility and mobility. Cr has no verified biological role and has been classified as nonessential for plants and animals.

MATERIAL AND METHODS

Free proline content was determined according to the method of Bates et al. (1973). For this, 0.5 g leaf material (of the three categories) of each cultivar was homogenized in mortar with pestle in 10 ml 3 % sulphosalicylic acid, thoroughly and filtered through Buchner's funnel using Whatman No. 1 filter paper. The volume of filtrate was adjusted to 20 ml with 3% sulphosalicylic acid. Then 0.5 ml of the filtrate was allowed to react with 2 ml glacial acetic acid and 2 ml acid ninhydrin reagent (prepared by warming 1.25g ninhydrin in 30ml glacial acetic acid and 20ml 6M phosphoric acid with agitation and stored at 4°C) in a test tube for one hour at 100°C in boiling water bath. Similar procedure was also followed for another set of test tubes containing various concentrations of standard proline solutions (0.1mg proline ml^{-1}). After 1 hour, the reaction was terminated by transferring the test tubes immediately to ice bath. To each tube 4ml toluene were added and mixed vigorously for 15-20 seconds. Reaction mixtures were then brought to room temperature and absorbance of toluene chromophore was measured at 520 nm on Shimadzu UV-190 double beam spectrophotometer against toluene as a blank. Proline concentrations were calculated from calibration curve and final values were expressed as mg $100 g^{-1}$ of dry tissue.

RESULT AND DISCUSSION

The free proline level in young, mature and senescent leaves of mulberry cultivars namely M5 (K2), V1 and S36 is recorded in the Fig. 1. The young leaves of all the three cultivars contain higher free proline level as compared to mature and senescent leaves. In senescent leaves a marked decline in free proline level is noticed in all the three cultivars. Proline is also a building block of proteins, it is found to occupy a unique position in plant metabolism due to its participation in responses of plants. Proline was heterocyclic amino acid belongs to glutamate family of amino acids and it is derived mainly from glutamate. According to Kochian (2000), ornithine also serves as precursor for biosynthesis of proline in catabolic pathway. Among the two precursors, glutamate is more predominant and synthesis of proline requires both ATP and reducing equivalents. Proline is precursor of amino acid hydroxyproline and the conversion of proline into hydroxyproline takes place after incorporation of proline in the protein molecule. The hydroxyproline rich in

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Research Article

Changes the enzyme nitrate reductase activity (EC 1.6.6.1) during leaf senescence in sericultural crop *Morus alba* Linn.

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ABSTRACT

An attempt has been made to study changes the enzyme nitrate Reductase activity during leaf senescence in mulberry (*Morus alba* Linn.) The activities of enzyme nitrate reductase in young, mature and senescent leaves of three mulberry cultivars namely M5 (K2), V1 and S36 are recorded in the Fig. 1. It is clear that from the figure there is a marked decline in the nitrate reductase activity in the senescent leaves of all the three mulberry cultivars. This decline is more significant in case of cultivar S36 as compared to M5 (K2) and V1.

Keywords: Nitrate Reductase activity, *Morus alba* Linn.

INTRODUCTION

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* Linn. (Ullal and Narasimhanna, 1981). Cocoon production depends mainly on nutrient composition of mulberry leaves (Krishnaswami *et al.*, 1971; Bhuyan, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving verities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al.*, 1999) Ganga (2003) suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. During present study nutritional constituents of young, mature and senescent leaves from three cultivars of mulberry (viz. M5, V1 and S36) studied has been compared. Hence, in order to have further insight in to the above problem, a fate of activity of enzyme nitrate reductase during leaf senescence in the three cultivars of mulberry (viz. M5 (K2), V1 and S36) has been studied in the present investigation.

MATERIAL AND METHOD

Activity of enzyme Nitrate Reductase (EC 1.6.6.1) was determined following the *in vivo* method described by Jaworski (1971). The leaf tissue was incubated in the medium containing 1ml 1M KNO_3, 2 ml 5% n-propanol, 5 ml 0.2 M-phosphate buffer (pH 7.5) and 2 ml 0.5% Triton-X-100 for 1 hour in dark under anaerobic conditions. After 1h, 1ml of reaction mixture was taken out and mixed with 1ml, 1% sulfanilamide in 1M HCl and 1 ml 0.02% NEEDA [N-(1-naphthyl)-Ethylene Diamine Dihydrochloride], while mixture of 1ml incubation medium, 1ml sulfanilamide and 1ml NEEDA served as a blank. The absorbance was read at 540 nm on UV-VIS double beam spectrophotometer (Shimadzu 190). The standard curve was prepared with the help of different concentrations of KNO_2 and enzyme activity is expressed in terms of µ moles of NO_2 liberated h^{-1} g^{-1} of fresh tissue.

RESULTS AND DISCUSSIONS

The activities of enzyme nitrate reductase in young, mature and senescent leaves of three mulberry cultivars namely M5 (K2), V1 and S36 are recorded in the Fig. 1. It is clear that, from the figure there is a marked decline in the nitrate reductase activity in the senescent leaves of all the three mulberry cultivars. This decline is more significant in case of cultivar S36. Nitrate reductase represents one of the most important enzyme systems in plant kingdom, since it catalyses the first step of nitrogen assimilation in plants. The enzyme system includes a reduced pyridine nucleotide (NADPH or NADH) as an electron donor, flavinadenine dinucleotide (FAD), and molybdenum. It is assumed that during the reduction, electrons are directly transferred from molybdenum to nitrate (Guerrero *et al.*, 1981). According to Kaiser *et al.*, (2002) this enzyme catalyses the transfer of two electrons from NAD(P)H to nitrate to produce nitrite. Campbell (1999) suggested that NR serves as a central point for integration of metabolism by governing flux of reduced

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CHANGES IN TOTAL NITROGEN CONTENT DURING LEAF SENESCENCE IN SERICULTURAL CROP *MORUS ALBA* LINN.

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ABSTRACT

An attempt has been made to study changes the total nitrogen content during leaf senescence in mulberry (*Morus alba* Linn.). The level of total nitrogen content in young, mature and senescent leaves of three mulberry cultivars namely M5 (K2), V1 and S36 are recorded in Fig. It is clear from the figure that, there is a marked decline in the nitrogen content in the senescent leaves of all the three mulberry cultivars. The young leaves of cultivar S36 contain relatively higher level of total nitrogen as compared to the cultivars M5 (K2) and V1.

Keywords – Total nitrogen content, *Morus alba* Linn.

INTRODUCTION–

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* Linn. (Ullal and Narasimhanna, 1981). Cocoon productidh depends mainly on nutrient composition of mulberry leaves. (Krishnaswami *et al.*, 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving verities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al.*, 1999). Ganga (2003) suggested that over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. During present study nutritional constituents (nitrogen contents) of young, mature and senescent leaves from three cultivars of mulberry (VIZ- M5, V1 and S36) studied has been compared.

MATERIAL AND METHOD –

Total nitrogen content was estimated according to the method of Hawk *et al.*, (1948). Oven dried powdered plant material (0.2g) of each category was taken in Kjeldahl's flask with a pinch of micro salt (200 g K_2SO_4 + 5 g $CuSO_4$ dehydrated) and to it 5ml H_2SO_4 (1:1) were

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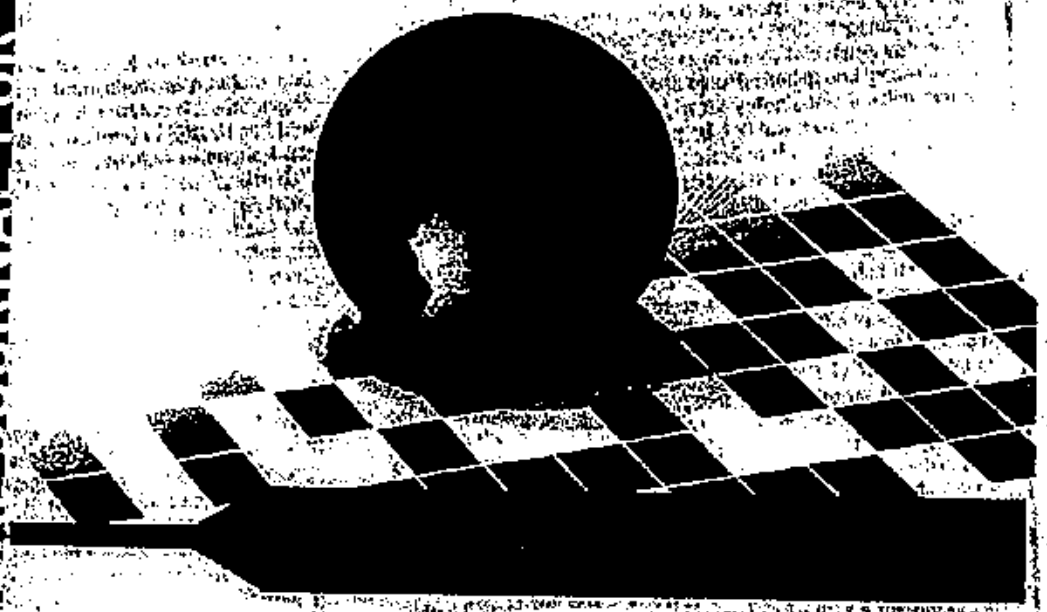

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Botany

Research Paper

Change The Activity of Enzyme Dehydrogenase (Ec 1.1.1.4) During Leaf Senescence in Sericultural Crop *Morus Alba Linn*

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ABSTRACT

[illegible]

KEYWORDS : Enzyme Dehydrogenase, Morus alba Linn.

Introduction

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry leaves are used as food for rearing monophagous silkworm (*Bombyx mori* L) (Ullal and Narasimhanna,1981). Mulberry leaves used as food for rearing of silk worms, larvae growth and development of silkworm and subsequent cocoon production depends mainly on the nutrient composition of mulberry leaves (Krishnaswami *et al*, 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving varieties, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al*, 1999). Ganga (2003) stated that, due to low protein level, declining (i.e. over mature, yellowing) leaves should be discarded. But at the same time there are several reports which indicate that leaf senescence in plants is promoted by several environmental constituents. Hence, in order to have further insight in to the above problem, a fate of various nutritional constituents during leaf senescence in the three cultivars of mulberry (viz. MS (K2), V1 and 536) has been studied in the present investigation.

Material and methods:-

Healthy, young, mature and senescent leaves of mulberry cultivars MS (K2), V1 and 536 were collected from identical positions and brought to the laboratory. The activity of enzyme dehydrogenase (EC 1.1.1.4) was studied the tetrazolium method of Kittoch and Law (1957). 100 mg fresh leaf material (belonging to three categories) was cut into small pieces with razor. The leaf slices were incubated in dark place for 1hr in a vial containing 4 ml of 0.2% T.T.C (2,3,5 triphenyl tetrazolium chloride). After this incubation period, plant tissue was washed 2-3 times with distilled water, then surfaces were blotted and treated with 5ml of methoxy ethanol for extraction of the red coloured formazon, which is formed due to the activity of dehydrogenase. The optical density of coloured formazon was measured at 470 nm. The enzyme activity is expressed as ΔOD h/g fresh tissue.

Result and discussion

The changes in activity of enzyme dehydrogenase (EC 1.1.1.4) in young, mature and senescent leaves of all the three mulberry cultivars namely, MS (K2), V1 and 536 are shown in Fig.1. It is evident from the figure that, the young leaves of three cultivars have the highest dehydrogenase activity as compared to mature and senescent leaves.

According to Welmberg (1970), the enzyme dehydrogenase is one of the major energy yielding enzymes in cell metabolism and any fluctuations in its activity would result in the disruption and alterations of the growth. These are oxidizing enzyme catalyzing electron transfer, from the donor to an acceptor other than molecular oxygen. Various dehydrogenases are involved in glycolysis, pentose phosphate pathway and TCA cycle in seeds (Chakravorti and Burma, 1959). Glyceraldehyde 3 phosphate dehydrogenase is an important glycolytic enzyme. The conversion of pyruvate an end product of glycolysis, to acetyl CoA is catalysed by multienzyme pyruvate dehydrogenase complex. The important function of pentose phosphate cycle is to provide adequate amount of NADPH for various synthetic processes and this is accomplished with two dehydrogenases. Since, the respiratory process is compartmentalized in cytoplasm and mitochondria. The cytosolic dehydrogenases generate reducing potentials NADH and NADPH which are utilized in various metabolic activities in growing tissues and also replenish the mitochondrial compartment with reducing powers in the event of metabolic limitations (Chen *et al*, 1988). The reaction catalysed by enzyme glucose 6 phosphatase dehydrogenase (GDH) is regarded as regulatory step of pentose phosphate pathway. Similarly isocitrate dehydrogenase is important regulatory enzyme of TCA cycle. A relationship between dehydrogenase activity and respiratory rate has been established (Price and Thimann, 1954). It acts like oxidizing enzyme catalyzing electron transfer from the donor to an acceptor other than molecular oxygen. NADPH produced during light reaction of photosynthesis provides substrate for various dehydrogenases in the Calvin cycle as well as malate dehydrogenase of C_4 pathway. Sorbitol dehydrogenase (SDH), has been identified as the primary enzyme that metabolites sorbitol in apple fruit (Beruter, 1985) so it may play a critical role in defining sink activity in apple. The fate of different dehydrogenases during the course of leaf senescence has been studied by several workers. Calle *et al*, (1986) studied the sub cellular localization of NAD^+ dependent glutamate dehydrogenase (GDH) in leaves of barley (*Hordeum vulgare* L.) during the leaf senescence induced by detachment and incubation in the dark. GDH strongly increased in the cytoplasmic fraction during senescence. It also showed a retarded and low increase in the mitochondrial fraction; no GDH was detected in the chloroplast fraction. Masclaux *et al*, (2000) have demonstrated that glutamate dehydrogenase is one of the factor involved in sink to source transition in case of tobacco leaf development. Vora *et al*, (1990) found that senescent chloroplast have high ferricyanide reducing activity, probably related to NADH dehydrogenase. Pistelli *et al*, (1992) recorded increase in activities of malate dehydrogenase during the foliar senescence of leaf beet. In peroxisomes from senescent leaves the Km of isocitrate dehydrogenase (ICDH) decreased almost 11 fold. This kinetic behavior resulted in the catalytic efficiency approximately 12-times higher for peroxisomal ICDH from senescent leaves (Corpas *et al*, 1999). However, the protein levels of ICDH in peroxisomes were not altered during senescence. The physiological significance of the change in the Km of peroxisomal ICDH during senescence is probably double; first, to compete with isocitrate lyases, an enzyme of the glyoxylate cycle which is present in the peroxisomes from senescent leaves, for the intracellular pool of isocitrate; and second, to provide a higher and constant supply of NADPH in order to eliminate, by the ascorbate glutathione cycle, the excess of H_2O_2 producing during senescence when catalase activity decreases dramatically (Pastori and del Río,1997). Jordi *et al*, (1996) studied leaf senescence of *Alstroemeria* cut flowering stem in the dark. Two dimensional (2D) electrophoresis reveled that a polypeptide with an apparent molecular mass of 50 (+ - 2) KDa and isoelectric point of 5.0 (+ – 0.1) accumulated during the senescence process. Treatments which delayed leaf senescence (light and

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Research Paper Botany

Changes in The Ascorbic Acid Content During Leaf Senescence in Sericultural Crop Morus Alba. Linn.

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ABSTRACT

The feeding of the silkworms on the leaves of mulberry is one of the significant components of sericulture. Thus, the leaf quality has an obvious impact on the performance of silkworms. Leaf senescence marks one of the critical phase in the life of leaves which is a genetically programmed and environmentally modulated event. Hence an attempt has been made to study the variations in Ascorbic Acid contents in young, mature and senescent leaves of the three mulberry cultivars namely M5 (K2), V1 and S36 are shown in the Figure. It is evident from the figure that, the young and mature leaves of three cultivars have the higher ascorbic acid content as compared to senescent leaves. Among the three cultivars, leaves of cultivar S36 contain the highest amount of ascorbic acid. In senescent leaves of all the three cultivars there is decline in the level of ascorbic acid content and this reduction is quite significant in the leaves of cultivar V1.

KEYWORDS Ascorbic acid, Morus alba Linn.

INTRODUCTION-

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry leaves are used as food for rearing monophagous silkworm (Bombyx mori L) (Ullal and Narasimhanna,1981). Mulberry leaves used as food for rearing of silkworms, larvae growth and development of silkworm and subsequent cocoon production depends mainly on the nutrient composition of mulberry leaves (Krishnaswami et al., 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving verities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit et al., 1999). Ganga (2003), stated that, due to low protein level, declining (i.e. over mature, yellowing) leaves should be discarded. But at the same time there are several reports which indicate that leaf senescence in plants is promoted by several environmental constituents. Hence, In order to have further insight in to the above problem, a fate of various nutritional constituents during leaf senescence in the three cultivars of mulberry (viz- M5 (K2), V1and S36) has been studied in the present investigation.

MATERIAL AND METHOD-

A titrimetric method described by Sadasivam and Manickam, (1992) was followed to determine the leaf ascorbic acid content. The extract was prepared from fresh leaves (Young, Mature and Senescent) of the three cultivars of mulberry viz. M5 (K2), V1 and S36, in 4 % oxalic acid to reduce the p^H and to stabilize its content by preventing catalytic oxidation. After centrifugation, clear supernatant was used to estimate the amount of Ascorbic Acid. Ascorbic Acid was oxidized to dehydroascorbic acid by reducing 2, 6 dichlorophenolindophenol (a blue dye) to a pink coloured solution. Oxalic acid was used as a titrant. The capacity of plant extract to reduce the dye is directly proportional to Ascorbic Acid content. Standard Ascorbic Acid (100 µg ml^{-1}) was titrated against the dye till the appearance of persistent pink colour. The amount of the dye consumed was equivalent to the amount of Ascorbic Acid taken for titration and was calculated as follows,

$$\text{Ascorbic acid (mg 100g}^{-1}) = \frac{0.5}{\text{Burette reading (Std)}} \times \frac{\text{Burette reading (extract)}}{5} \times \frac{\text{Volume} \times 100}{\text{Weight of sample(g)}}$$

RESULT AND DISCUSSION-

It is evident from the figure.1. That, the young and mature leaves of three Mulberry cultivars VIZ. M5 (K2), V1 and S36 have the higher Ascorbic Acid content as compared to senescent leaves. Among the three cultivars, leaves of cultivar S36 contain the highest amount of ascorbic acid. In senescent leaves of all the three cultivars there is decline in the level of ascorbic acid content and this reduction is quite significant in the leaves of cultivar V1. Ascorbic acid in plants is important source of dietary vitamin. C. Its presence is noticed in all compartments of the cell. In chloroplast the concentration of Ascorbic Acid is about 20 mM. The site of biosynthesis of Ascorbic Acid is in mitochondria (Smirnoff et al., 2001). L-galactone 1, 4-lactone is a main precursor for ascorbic acid biosynthesis (Smirnoff et al., 2001). A very small amount of ascorbic acid is also synthesized through uronic acid pathway (Smirnoff and Wheeler, 2000). Ascorbic acid (vitamin C) is utilized as a co-factor for violoxanthin deepoxide in chloroplast stroma, in quenching free oxygen radicals and reacting with hydroxy radicals, thus, protecting against O2 mediated toxicity. According to Bendich et al., (1986), ascorbate is a good reducing agent, its free radical is very stable and fairley non-reactive qualitative which are consistent with the relative non-toxicity of the latter and its antioxidant role in biological systems. In view of Loewus (1988) at least one functional role for L-ascorbic acid is now clearly identified that of participation in the mechanism for removal of active oxygen during photosynthesis. Ascorbic Acid peroxidase is involved in removing toxic hydrogen peroxidase (Arrigoni et al., 1992). It also acts as the precursor for biosynthesis of tartaric acid and oxalic acid. L-ascorbic acid serves as a co-factor for many enzymes (Arrigoni and De Tullio, 2000). Ascorbic acid is present in three forms in the plants viz. reduced ascorbic acid, non dehydroxy ascorbic acid (an unstable intermediate) and dehydro- ascorbic acid. Most of the ascorbic acid in plants is in the reduced form. Ascorbate affects many enzyme activities and physiological processes (Padh, 1990). According to Citterio et al., (1994), the main role of ascorbic acid may be related to its action in controlling the synthesis of hydroxyl proline containing proteins, which may be an essential requirement for cell progression through the G1 and G2 phases. Ascorbic acid metabolism in apoplast is described by Pingocchi et al., (2003). Apoplast mainly functions in control of stress, mainly the oxidative stress caused by environment, pathogen attack, growth and defense. Ascorbic acid is the major antioxidant buffer present in apoplast which is oxidized during these conditions. The oxidation as well as reduction of ascorbic acid is

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Research Paper Botany

Change The Activity of Enzyme Catalase (Ec.1.11.1.6) During Leaf Senescence in Sericultural Crop Morus Alba Linn

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ABSTRACT

The feeding of the silkworms on the leaves of mulberry is one of the significant components of sericulture. Study the changes in the activity of enzyme catalase (EC 1.11.1.6) during leaf senescence, in the three mulberry cultivars namely – M5 (K2), V1 and S36. Among the three categories of leaf the activity of enzyme catalase is highest in young leaves in case of all the three cultivars of mulberry. While, a decline in catalase activity in senescent leaves has been noticed in all the three cultivars and the extent of this decline is significant in case of S36 cultivars.

KEYWORDS Enzyme Catalase (EC 1.11.1.6), Morus alba. Linn

Introduction-

The important agro industry sericulture involves rearing of silkworms for commercial production of the silk. Mulberry leaves are used as food for rearing monophagous silkworm (*Bombyx mori* L) (Ullal and Narasimhanna, 1981). Mulberry leaves used as food for rearing of silkworms, larvae growth and development of silkworm and subsequent cocoon production depends mainly on the nutrient composition of mulberry leaves (Krishnaswami *et al.*, 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving verities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al.*, 1999). Ganga (2003), stated that, due to low protein level, declining (i.e. over mature, yellowing) leaves should be discarded. But at the same time there are several reports which indicate that leaf senescence in plants is promoted by several environmental constituents.

Material and method-

Enzyme Catalase activity was assayed by following the method of Luck (1974) as described by Sadasivam and Manickam (1992). Fresh leaves of three mulberry cultivars namely – M5 (K2), V1 and S36 (Different categories such as young, mature and senescent leaves) were collected, washed and blotted to dry and cut into small segments. 500 milligrams of leaf material was homogenized in 10 ml (1/15 M) phosphate buffer (pH 6.8) and filtered through four layered muslin cloth. The filtrate was centrifuged at 10,000 rpm for 20 minutes at 4°C and supernatant was used as an enzyme source. The reaction mixture contained 3ml of 10% H_2O_2 [0.16 ml of H_2O_2 (6% w/v) were diluted to 100 ml with phosphate buffer (pH^7)] and 0.1 ml enzyme extract. It was mixed well and ΔOD was recorded at 240 nm. The enzyme activity was expressed as unit ΔOD $min^{-1}mg^{-1}$ protein as described by Bergmeyer (1974).

Result and discussion

The changes in the activity of enzyme catalase (EC 1.11.1.6) during leaf senescence in the three mulberry cultivars namely – M5 (K2), V1 and S36 are shown in the Fig. 1. Among the three leaf categories the activity of enzyme catalase is highest in young leaves in case of all the three cultivars of mulberry. While, a decline in catalase activity in senescent leaves has been noticed in all the three cultivars and the extent of this decline is significant in case of S36 cultivars.

Catalase (E.C. 1.11.1.6) hydrogen peroxide oxidoreductase represents one of the most important oxidoreductase enzymes involved in protective processes in the cell as it brings about degradation of harmful metabolic hydrogen peroxide (H_2O_2). It is indicated by Willekens *et al.*, (1997), that catalase can serve as a sink for H_2O_2. Lopez-Nicolas *et al.*, (2002) have demonstrated that in etiolated lupin hypocotyls, the H_2O_2 consumption by catalase was 20 to 30 times higher than guaiacol peroxidase and 200-300 times higher than ascorbate peroxidase indicating very clearly that catalase is a major H_2O_2 detoxifying enzyme. At the catalytic centre each monomer has heme as prosthetic group (Boon *et al.*, 2001). Thus typical catalase enzyme is a three dimensional structure having homotetrameric heme proteins. Catalase shows reactions.

(I) Decomposition of hydrogen peroxide to give water and oxygen.

$$2H_2O_2 \xrightarrow{\text{catalase}} 2H_2O + O_2 \uparrow$$

(ii) Oxidation of H donors for example methanol, formic acid, phenol with the consumption of one mole of peroxidase.

$$ROOH + AH_2 \xrightarrow{\text{catalase}} H_2O + ROH + A$$

Recent cytochemical and biochemical findings indicate that catalase in plant cell is located only in microbodies (peroxisomes, glyoxysomes). Catalase brings about H_2O_2 decomposition in the leaf peroxisomes, where H_2O_2 is generated during photorespiration by glycolate oxidase; photorespiration rates are quite significant in C_3 plants (Dat *et al.*, 2000) in contrast of C_4 species. In all organisms with aerobic metabolism catalase plays an important role of protecting living cells against toxic oxygen derivatives derived in the metabolism (Marcel, 1998). Santucci *et al.*, (2002) emphasized that catalase forms a major part of enzymic groups of oxidoreductase as it scavenges superoxide dismutase. H_2O_2 generation is also promoted in plants following exposure to a wide variety of abiotic and biotic stimuli such as, very high and very low of temperatures, UV radiations ozone exposure, excess light stress, plant growth inhibitors like ABA, water deficit, wounding and pathogenesis (Neill *et al.*, 2002). Bolwell *et al.*, (2002) suggested that potential sources of H_2O_2 generation include NADPH oxidase, cell wall peroxidases, amine oxidase, oxalate oxidase and flonin containing oxidase. H_2O_2 is relatively long lived molecule that can diffuse some distances from its production site. Sarkar and Choudhary (1981) have noticed enhancement of senescence of detached leaves due to H_2O_2. H_2O_2 is reported to bring about programmed cell death. (Desikan *et al.*, 1998) Hence, regulation of H_2O_2 level is of great significance for the

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The Changes in Moisture Content (Status) During Leaf Senescence in Sericultural Crop Morus Alba Linn.

Botany

KEYWORDS : Moisture content, Morus alba Linn.

ABSTRACT

Introductions:

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry leaves are used as food for rearing monophagous silkworm (*Bombyx mori* L.) (Ullal and Narasimhanna, 1981). Mulberry leaf is used as food for rearing of silkworms, larvae growth and development of silkworm and subsequent cocoon production depends mainly on the nutrient composition of mulberry leaves (Krishnaswami *et al.*, 1971; Bhuyian, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving varities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers etc (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al.*, 1999). Gangn (2003) stated that due to low protein level declining (i.e. over mature, yellowing) leaves should be discarded. Hence, in order to have further insight in to the above problem, a fate of various nutritional constituents and water contents during leaf senescence in, the three cultivars of mulberry (viz.M5 (K2), V1and S36) has been studied in the present investigation.

Material and methods:

The healthy leaves of the three categories (young, mature and senescent) were collected from the field grown plants. Leaves of each category were randomly sampled. Five gram of leaf material was accurately weighed. Dry weight was obtained by keeping the weighed fresh material in oven at 60°C till constant weight was noticed. The water content was calculated according to Weatherly (1950) as follows

$$WC(\%\text{ of dry weight}) = \frac{\text{A Fresh wieght} - \text{Dry weight}}{\text{Dry Weight}}$$

Result and Discussion:

The changes in moisture status (content) during leaf senescence in three mulberry cultivars viz. M.5 (K2), V1 and S36 are depicted in the Fig.1. It is evident from the figure that, maximum moisture content is in the young leaves of all three cultivars. The moisture percentage is slightly reduced in senescent leaves of all the three mulberry cultivars (Bayles *et al.*, 1937). However, Levitt (1972) suggested that metabolic disturbances which are not severe enough to cause injury by themselves may nevertheless amplify the other effects of the dehydration strain and therefore the injury. Generally, the nutritional status of mulberry leaves which influences the economic characters of silkworm crop depends upon the level of moisture (Anonymous, 1975 and Bongale *et al.*, 1997). High moisture content in the leaves has favorable effect on the palatability and assimilability of nutrients and serves as criteria in estimating the leaf quality (Parpiev, 1968). Talebi Esfandarani *et al.* (2002) stated that, silkworms do not drink water; they get their moisture from the leaves so they must be fresh. Leaf quality often mainly implies leaf moisture, thereby ignoring other nutritive components (Bongale *et al.*, 1997). Friend 1958, and Waldbauer, 1968 highlighted the importance of dietary moisture content and reported that phytophagous insects required high water intake for normal development and feeding of larvae with wilted foliage produced adverse effects. Importance of leaf moisture contents in relation to the performance of silkworm has been reported by Narayanaprakash *et al.* (1985) and Paul *et al.* (1992), who observed that the decrease in water contents in feed affected different energetic parameters and they also reported that assimilation of food converted into body tissue decreased with decreasing moisture contents. According to Gangn (2003), the water content plays an important role in determining the quality of leaves for silkworm feeding. Many scientists reported favourable effect of high moisture content of leaves on palatability and digestibility by silkworms (Parpiev, 1968; Waldbauer, 1968 and Kasiviswanathan *et al.*, 1973). Paul *et al.* (1992) observed in their studies that availability of moisture content in the leaves enhances the feeding efficiency of the larvae which in turn increases the growth rate. Dasgupta (1961), reported significant differences in the nutritive value of the leaves for silkworms rearing. Higher moisture content in the leaves is a desirable for the early stage of larval rearing in silkworm *Bombyx mori* L. (Anonymous, 1984). Talebi Esfandarani *et al.*, (2002) observed that the cocoon, shell and pupa weight and eggs productivity increased with increasing leaf moisture content that may be due to increasing consumption, digestibility and absorption of mulberry leaf nutrients. Narayanaprakash *et al.* (1985) reported that assimilated food conversion into body tissue and conversion efficiency decreased with decreasing dietary moisture content in the mulberry leaves and also shell weight and fibroin content of the cocoons increased with increasing dietary moisture. Paul *et al.* (1992) noticed that absolute consumption and growth rate per day per larva, the quantity of dry matter consumed and digested, the values of efficiency of conversion of ingested and digested food and final larval weight increased with increasing percentage of leaf water and approximate digestibility increased progressively up to 70% leaf moisture but was reduced at control dietary water level (76.6% leaf moisture). Basu *et al.* (1992) reported that the development time and weight gain were significantly higher for larval fed on tender rather than on older leaves and the pupal and adult weights and fecundity were also significantly higher. Chaluvachari and Bongale (1995a) reported that moulting ratio and larval weight were associated with mulberry leaf moisture.

About 70% moisture content has been regarded to be optimum for silkworm rearing (Jolly and Dandin, 1986). A declining trend in the moisture content was observed from tender to mature leaves in all the varieties (S-1635, V1, SV1, MR2, RFS175, JRH and Jatinini) and in all seasons, (Sinha *et al.*, 2003). The same pattern was noticed in the leaves of S1 and K2 mulberry plants (Sinha *et al.*, 1993 b). According to Chaluvachari and Bongale (1995b), the mulberry varieties namely V1, C-1730, C-2016, C-2017, Ananthe, RFS-175, Vishala, Thalinghatopura, S1 and S-1635 show this trend. It is evident from the above observation

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RESEARCH PAPER | Botany

Changes in The Activity of Enzyme Peroxidase (Ec 1.11.1.7) During Leaf Senescence in Sericultural Crop Morus Alba Linn

KEYWORDS: Enzyme peroxidase (EC 1.11.1.7), Morus alba, Linn

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ABSTRACT

Introduction

The important agro industry sericulture involves rearing of silkworms for the commercial production of the silk. Mulberry leaves are used as food for rearing monophagous silkworm (*Bombyx mori* L) (Ullal and Narasimhanna, 1981). Mulberry leaves used as food for rearing of silkworms, larvae growth and development of silkworm and subsequent cocoon production depends mainly on the nutrient composition of mulberry leaves (Krishnaswami *et al*, 1971; Bhuyan, 1981). Many aspects like health and growth of the larvae, cocoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving varities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al*, 1999). Ganga (2003), stated that due to low protein level, declining (i.e. over mature, yellowing) leaves should be discarded. But at the same time there are several reports which indicate that leaf senescence in plants is promoted by several environmental constituents.

Material and method

To study the enzyme peroxidase (EC 1.11.1.7) activity the method of Meehly (1954) was followed. 500 mg fresh leaf material (of different categories VIZ. M5 (K2), V1 and S36) of each cultivar was homogenized in 15 ml ice-cold (0.1 M) phosphate buffer (pH 7) and filtered through 4 layers of muslin cloth. The filtrate was centrifuged at 10,000 rpm for 20 minutes and supernatant was used as source of enzyme. The reaction mixture contained 2 ml of 0.1 M phosphate buffer (pH 7), 1 ml of 20 mM guaiacol and 1 ml enzyme extract. The reaction was initiated by the addition of 0.05 ml H_2O_2 (1 mM). Changes in optical density due to oxidation of guaiacol was recorded after 30 min. at 470 nm. The soluble proteins in the enzyme extract were determined according to the method of Lowry *et al*, (1951). The enzyme activity was expressed as unit h^{-1} mg^{-1} protein.

Result and discussion

The activity of enzyme peroxidase (EC 1.11.1.7) in young, mature and senescent leaves of the three mulberry cultivars VIZ. M5 (K2), V1 and S36 is shown in Fig.1. It is evident from the figure that the mature leaves of three cultivars have relatively very high enzyme activity as compared to young and senescent leaves. The leaf senescence in mulberry is found to be accompanied by a general decline in the activity of this enzyme.

Among the plant enzymes, peroxidase is perhaps the most extensively studied enzyme (Penel *et al*, 1992). According to Crozier *et al*, (2000), the enzyme peroxidase or IAA oxidase catalyzes decarboxylative catabolism of IAA by removing the 1-carboxyl group and decarboxylated oxindoles (Oxindole-3-methanol, 3-methylene oxindole and 3-methyloxindole) or indoles (indole-3-methanol, indole-3-aldehyde and indole-3-carboxylic acid). According to Gaspar *et al*, (1982), besides the possible involvement of peroxidases in many reactions, isoperoxidases play four major roles in growth and development through their control and participation in auxin catabolism and consequently the regulation of endogenous free auxin level, lignin formation and cell wall biogenesis, defense mechanism against pathogens and some respiratory processes. The leaf senescence represents a terminal developmental stage and there are many reports which indicate that there is an increase in peroxidase activity during leaf senescence (Lauriere, 1983). According to Biredca *et al*, (1979), peroxidase has been implicated in plant senescence mainly due to its ability to oxidize IAA and to participate in lignin formation. An increase in the activity of this enzyme in particular of its distinctive isoforms, has been observed in many species in the course of physiological or ethylene induced senescence. In primary leaves of *Phaseolus vulgaris* peroxidase tend to increase in leaf homogenates with advancing senescence, but only low and essentially constant activity of peroxidase was detectable in chloroplasts during senescence (McRae and Thompson, 1983). According to Gaspar *et al*, (1982), besides the possible involvement of peroxidases in many reactions, isoperoxidases play four major roles in growth and development through their control and participation in auxin catabolism and consequently the regulation of endogenous free auxin level, lignin formation and cell wall biogenesis, defense mechanism against pathogens and some respiratory processes.Its association with electron transfer from NADH, to cytochrome during respiration was studied by Ivonova *et al*, (1967). In the absence of H_2O_2, peroxidase can catalyze oxidation of NADH and NADPH with the help of atmospheric oxygen. Peroxidase shows oxidase activity besides the peroxidase activity i.e. it catalyzes the oxidation of different substances by atmospheric oxygen under aerobic conditions without exogenous peroxide i.e. NADH, NADPH, indol acetic acid and phenyl pyruvate (Frie, 1976). As early as 1968 Parish sug-

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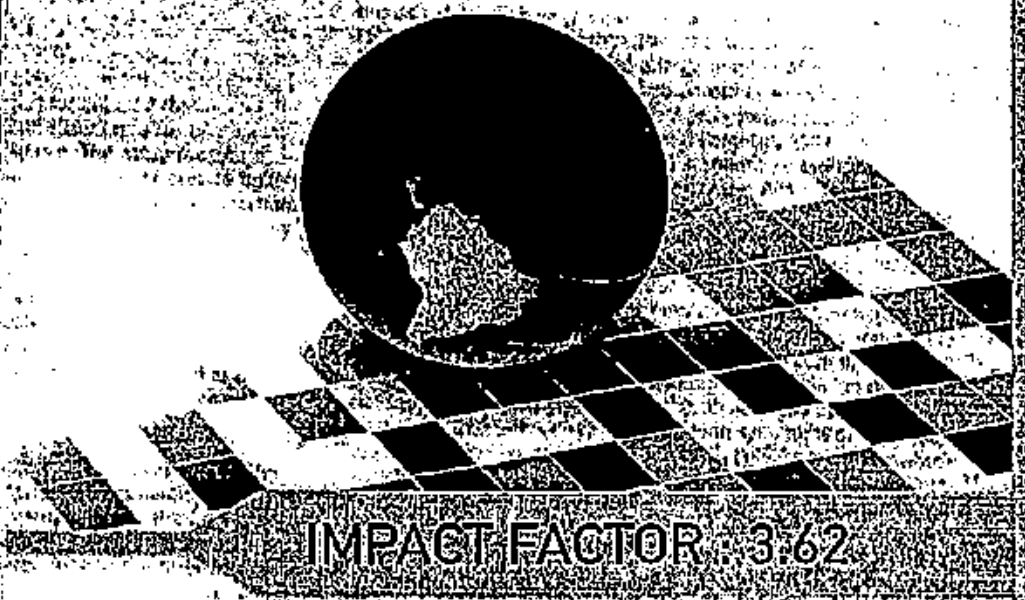

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CHANGES IN THE ACTIVITY OF ENZYME ACID PHOSPHATASE (E.C. 3.1.3.2) DURING LEAF SENESCENCE IN SERICULTURAL CROP MORUS ALBA LINN.

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ABSTRACT

KEYWORDS : Enzyme Acid phosphatase, Morus alba Linn.

INTRODUCTION

Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* L. (Ullal and Narasimhanna 1987). Health and growth of the larvae, cacoon quality and raw silk quality are influenced by quality of leaf. Since, the physiological status of mulberry leaf is important in determining the nutritional quality; the age of leaf may influence silkworm feeding. Cacoon production depends mainly on nutrient composition of mulberry leaves (Krishnaswami *et al*., 1971; Bhuyan, 1981). Many aspects like health and growth of the larvae, cacoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving varities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al*., 1999). Ganga (2003) suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the silkworms. During present study nutritional constituents of young, mature and senescent leaves from three cultivars of mulberry (viz. - M5, V1 and S36) has been studied and compared. Hence, in order to have further insight in to the above problem, a fate of various nutritional constituents during leaf senescence in the three cultivars of mulberry (viz. - MS (K2), V1 and S36) has been studied in the present investigation.

MATERIAL AND METHOD

The enzyme acid phosphatase (E.C. 3.1.3.2) activity was assayed according to the method of McLachlan (1980). Five hundred milligrams of leaf material (of each category) was homogenized in 10ml ice cold 0.1M acetate buffer (pH 5.0). The extract was filtered through a four layered muslin cloth and centrifuged at 10,000 rpm for 20 minutes. The supernatant served as enzyme source. The assay mixture contained 3ml of p-nitrophenyl phosphate (0.1mg/ml of acetate buffer pH 5.0), 2 ml acetate buffer (pH 5.0) and 1ml enzyme. The reaction was allowed to proceed for 30 min. and then it was terminated by adding 1.5 ml of 1.68 N NaOH. Blank reaction mixture was prepared by adding all ingredients except the enzyme. The optical densities of developed pale yellow colour complex were read at 420 nm on Shimadzu double beam spectrophotometer. The soluble proteins in enzyme extract were estimated following the method of Lowry *et al*; (1951) described earlier. The enzyme activity was expressed as Δ O.D. h⁻¹ g⁻¹ protein.

RESULT AND DISSCUSSION-

The changes in enzyme acid phosphatase (E.C. 3.1.3.2) activity during leaf senescence in the three mulberry cultivars namely M5 (K2), V1 and S36 are recorded in Fig.1. It is evident from the figure that the activity of enzyme acid phosphatase is slightly increased with increase in leaf age of mulberry cultivars. Among the three leaf categories, young leaves have the lowest enzyme activity in case of all the three cultivars. The intracellular phosphatases, occurring in cytosol, plastids and vacuoles are causal factors for the release of Pi from organic compounds during seed germination, favoring internal Pi mobilization and translocation from senescent tissue (Lee, 1988 and Duff *et al*., 1994). Acid phosphatases comprise monomeric or dimeric glycoproteins which have subunit molecular masses of approximately 50-60 KD. These hydrolytic enzymes have a wide range of functions in plant metabolism; They have broad substrate specificity. According to Duff *et al*; (1994), plant acid phosphatases (APases) do not normally exhibit an absolute specificity. Two distinct categories of plant APases have been distinguished on the basis of their relative substrate selectivity. The first type of plant APases are those truly non-specific enzymes that show little or no substrate specificity. However, they are all possibly involved in the production, transport and recycling of Pi. The second category of plant APases are specialized enzymes such as the 3-P-glycerate (3 PGA) phosphatase from maize leaves (Randall and Tolbert, 1971) and the phosphoenol pyruvate (PEP) phosphatase of *Brassica nigra* (black mustard) Suspension cell cultures (Duff *et al*., 1989), which show clear but non absolute substrate specificity. These APases are important in the process of photorespiration and glycolysis (Plaxton, 1996). Phytases (E.C. 3.1.3.8 and 3.1.3.26) are well known class of acid phosphatase with a high affinity for inositol hexaphosphate (Phytate; IHP) and may therefore be particularly important for the hydrolysis of organic P sources in soils. These enzymes have been extensively studied from germinated seeds and grains (Nagai and Funahashi, 1962) and cotyledon tissue (Gibson and Ullah, 1988) of various higher plant species. According to Leigh and Walker (1980), the vacuole possesses acid phosphatase activity which could be distinguished by their very high susceptibility to low concentrations (100 μm) of ammonium molybdate. The acid phosphates was a soluble enzyme which hydrolyzed a large number of phosphate esters and had a pH optimum of 5.5. Acid phosphatase (APase) is believed to be involved in many physiological processes, especially regulation of phosphorus efficiency (Bieleski and Ferguson 1983). External and internal APase activities changes in response to phosphorus availability. Low phosphorus availability increases APase secretion to the rhizosphere in a number of plant species. Secretion of APase under phosphorus stress probably contribute to liberation of phosphorus from insoluble P sources in the soil (Tarafdar and Jungk, 1987) and thus plays a role in P uptake. Cheour *et al*., (1992) noticed that in senescing leaf discs of cabbage, phospholipase-D, phosphatidic acid and phosphatase, lipolytic acyl hydrolase and lipozymes appeared to be involved in the breakdown of phospholipids. In cotton, imposing a water deficit on excised leaves by floating on PEG solution caused increased histochemical staining, for phosphatase and lipase in chloroplast. This increased activity coincided with symptoms of chloroplast senescence (Da Silva *et al*., 1974). Yeh *et al*., (1995) noticed that abscisic acid and methyl jasmonate exhibited ABA-like effects by promoting senescence of detached rice leaves by inducing acid phosphatase activity. According Barrette-Lennard *et al*; (1982), the possible roles of phosphatase and other hydrolytic enzymes in senescence might be more apparent if increased enzyme activities could be related to the senescence of specific organelles and irreversible metabolic changes. Besford and Spred (1979) suggested two possible functions for this increased activity; i.e. enhanced translocation of phosphate from mature to young leaves and transport of Pi across the plasmalemma.

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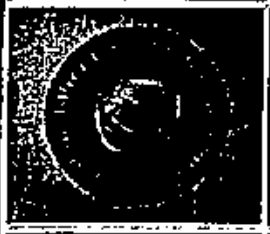

Changes in Oxalic Acid Content During Leaf Senescence in Sericultural Crop *Morus Alba* Linn

KEYWORDS: Oxalic acid content, *Morus alba* Linn.

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ABSTRACT

INTRODUCTION:

Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* L. (Ullal and Narasimhanna, 1981). Cocoon production depends mainly on nutrient composition of mulberry leaves. (Krishnaswami et al., 1971; Bhuyian, 1981). Health and growth of the larvae, cocoon quality and raw silk quality are influenced by quality of leaf. Hence, the physiological status of mulberry leaf is important in determining the nutritional quality; the age of leaf may influence silkworm feeding. Ganga (2003) suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. During present study nutritional constituents of young, mature and senescent leaves from three cultivars of mulberry (viz. M5, V1 and S36) studied has been compared.

MATERIAL AND METHOD:

The oxalic acid content in young, mature and senescent leaves of mulberry were estimated following the method of Abaza et al. (1968). One gram oven dried plant material, 10ml 3N HCl and 65ml double distilled water were taken in a volumetric flask for oxalic acid estimation. The flasks were kept for digesting the plant material for 1hr on boiling water bath. Then flasks were cooled and diluted to 100ml volume and filtered through Whatman No. 1 filter paper. Two aliquots of 50ml extract were placed in 150ml beakers and in each beaker 20ml 6N HCl were added to increase acidity and avoid pectin retention. Then the mixture was evaporated to half volume and filtered through Whatman No. 1 filter paper and precipitate was washed several times with warm double distilled water. To this filtrate 3-4 drops of methyl red indicator (1g methyl red in 100ml alcohol), and then concentrated ammonia solution was added until solution turned faint yellow. Then this solution was heated to 90-100°C carefully on water bath, cooled and filtered to remove interfering ferrous ions containing precipitate. The filtrate was heated to 90-100°C on water bath and then 10ml 5% $CaCl_2$ was immediately added with 20-25 drops of ammonia solution to restore yellow colour. This solution was allowed to settle overnight and on next day, filtered through Whatman Filter Paper No. 44 (ashless). The precipitate was washed several times with double distilled water to make free from Ca (to check whether the ppt. is free from Ca^{++}, 3ml of washing filtrate was taken in test tube and it was added with few drops of 5% sodium oxalate. The turbidity indicated presence of Ca^{++} and demanded further washing of ppt). Then filter paper containing ppt was dissolved in hot 1:5 H_2SO_4 and this was diluted to 125ml with double distilled water and transferred to 250 ml conical flask. The content of the conical flask was heated to 90° – 100°C and carefully titrated with 0.05N $KMnO_4$. The percentage of oxalate was calculated by using following formula,

$$\% \text{ of oxalate} = \frac{\text{ml } KMnO_4 \times 0.05 \times 45.02 \times 100}{1000 \times \text{dry weight} \times 50/100}$$

RESULT AND DISSCUSSION:

Oxalic acid content of the young, mature and senescent leaves of mulberry cultivars namely M5 (K2), V1 and S36 are recorded in the Fig. 1. It is evident from the figure that, the oxalic acid content in mature leaves is higher than that young leaves of all the three cultivars. In the senescent leaves a reduction in oxalic acid level is noticeable in all the three cultivars. Zindler Frank (1974) stated that aspartate former C_4 monocots accumulate oxalate salt while, malate formers C_4 monocots do not accumulate this organic acid. On the other hand, malate former dicots accumulate oxalic acids. The level of oxalic acid in oxalic acid accumulating species is in the range 7.2 to 9.1 % (Mathams and Sutherland, 1952 and Vityakon and Standal, 1989). It is evident from our observations that, the total oxalic acid content in mulberry leaves is relatively low when compared with that of oxalic acid accumulating species. Oxalic acid is present in two dominant fractions i.e. soluble and insoluble forms. According to Vityakon and Standal (1989), the soluble fractions consist mainly of K- oxalate and Mg- oxalate, while, the dominant cation in insoluble fractions is Ca, suggesting that most of this fraction is Ca- oxalate with small amounts of Mg. Oxalic acid is reported to be synthesized from several compounds in plants and these include oxaloacetate, glycolate, glyoxylate and ascorbic acid (Zindler Frank, 1974; Ravon et al, 1982 and Franceschi, 1987). According to Wagner (1981), oxalate is confined to vacuoles and can be used as marker for vacuoles. Oxalic acid is recognized by many plant researchers as a metabolic end product that undergoes little further metabolism. But Franceschi, (1987) found that significant radioactive label from oxalic acid was incorporated into starch in the light. He gives possible explanation that oxalic acid can be decarboxylated and the CO_2 released can be refixed and enters the carbon pool. In some halophytes, oxalic acid represents the major organic anion balancing excess cation content (Walsol, 1972). High oxalate levels in leaves of *Bassia uniflora*, *Chenopodium auricomum*, *Kochia pyrimi-*

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Research Article

Histopathological effect of organochloride endosulfan on gills of larvivorous fish *Rarbora daniconius*

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Acute toxicity, chronic toxicity, necrosis, endosulfan, *Rasbora daniconius*

Abstract

In present investigation pathological effects produced by acute and chronic exposure of pesticide organo-chloride endosulfan on gills of larvivorous fish *Rasbora daniconius* was studied. The changes noticed after acute treatment were found to be more pronounced than changes appeared after chronic treatment. The chronic exposure of gills to the pesticide endusulphan at three sub-lethal concentrations 0.0120 ppm, 0.0060 ppm 0.0040 ppm for 45 days showed changes like degenerated secondary gill lamellae necrosis of respiratory epithelium and damage primary gill lamellae. The effects were similar in all the three sublethal concentrations and the intensity of damage was dose dependent.

INTRODUCTION

Pollution of aquatic environment by pesticides and their residues is well known. Pesticides and their residues find their way into water bodies of aquatic organisms like fishes through gills. Pesticides after entering in the body of fish bring about histo-pathological and biochemical changes in different target and non-target organs (Ganeshwade, 2012).

Fishes are very sensitive to a wide variety of toxicants in water, various species of fish show uptake and accumulation of many contaminants or toxicants such as pesticides (Herger *et al*, 1995) Due to accumulation of pesticides in tissues produces many physiological and biochemical changes in the fishes and freshwater fauna by influencing the activities of several enzymes and metabolites (Nagarathnamma and Ramamurthi, 1982). The pervious histo-pathological studies of fish exposed to pollutants revealed that fish organs are efficient indicators of water quality (Cardoso *et al*., 1996 and Cengiz *et al*., 2001). The gills are important organ in fish to perform respiration, osmoregulation, acid base balance and nitrogenous waste excretion (Heath, 1987). Fish gills are also vulnerable to pollutants in water because of their large surface area and external location. For this region, fish gills are considered to be most appropriate indicator of water pollution levels (Alazemi *et al*., 1996). Many investigators have reported the histopathological changes in the gills of different fish species exposed to pesticides (Cengiz and Unlu, 2002; Vermurugan *et al*., 2007; Butchiram *et al*., 2009, Nutan *et al*., 2011). However there has been little information on the impact of endosulfan on gills of *Rarbora daniconius*.

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EFFECT OF PH ON NUVAN TOXICITY TO *RASBORA DANICONIUS*

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ABSTRACT
An attempt was made to study the acute toxicity of Nuvan with variable PH in *Rasbora daniconius* in order to determine limits of PH tolerance. During present study it was observed *Rasbora daniconius* tolerated PH upto 5 to 10 at the extremities of this range mortality of the fish was high therefore the toxicity tests were carried out at PH ranging from 6.5 to 9.0.

KEY WORDS: *Rasbora daniconius*, Toxicity, Nuvan.

INTRODUCTION
Nuvan is an organophosphate insecticide which is most toxic of all pesticides to vertebrate animals. Nuvan in the presence of trace moisture on standing breaks down with the formation of acidic products which further catalyse the decomposition. Nuvan is a short lived wide spectrum contact and stomach poison with fumigant and penetrant action. It is used as household and public health fumigant especially against mosquitoes and other dipteran insect in addition to crop protection use. Toxicity of compound is studied on several freshwater and marine fishes. (Annees. *et.al* 1975), Durairaj *et.al.* 1995), Ghosh *et.al* 1987), Khillare *et.al* 1988), Ghanbahadur *et.al* 2002.Very scanty literature is available on Nuvan toxicity on freshwater fish *Rasbora daniconius*, hence present work was carried out to study Nuvan toxicity in *Rasbora daniconius* at varinble PH in order to determine limits of PH tolerance in this fish.

MATERIALS AND METHODS
The fish *Rasbora daniconius* were collected from lake near Aurangabad and brought to laboratory. They were maintained in aquarium for nearly 30 days to acclimatize to laboratory conditions. During the period of acclimatization fishes were fed on alternate day with fish food. The water was replaced after feeding. The necessary care was taken to avoid disturbance to the aquarium. The experiments were conducted to selected concentration ranges from 0 to 1 % mortality. The acute toxicity experiments were carried out with variable PH to determine limits of PH tolerance. The PH was adjusted using sodium hydroxide and acetic acid. The acute toxicity tests for the periods of 24 hrs, 48 Hrs, 72 Hrs, and 96 hrs was carried out and observations were made on mortality of the fishes. The LC50 values of the of different time periods were calculated by regression analysis method (Finney 1971)

RESULTS AND DISSCUSSION
The observation made on the experimental fish *Rasbora daniconius* to study LC50 values of the pesticides ad different time periods with variable PH have been tabulated in the Table A-1 to A-3. The LC50 values of Nuvan under normal laboratory conditions have been 0.16 for 24 Hrs, 0.12 for 48 Hrs, 0.10 for 72 Hrs and 0.06 for 96 Hrs are shown in Table A-4. The variation in LC50 values of Nuvan for different periods using variable PH are recorded in tables A-1, A2 & A-3. The survival and mortality are recorded in Table A-1, A-2, A-3. The test fish tolerates PH ranging from 5 to 10 at the extremities of this range mortality of the fish was found very high therefore the toxicity tests were carried out at PH ranging from 6.5 to 9.0. The toxic effect of pollutants have been greatly influenced by the PH, Quality, and hardness of Water (Manson 1981) LC50 values obtained in ppm for a period of 24hrs, 48hrs, 72hrs and 96hrs are 0.10, 0.12, 0.14, 0.16 at 6.5PH and 0.16,0.14,0.12,0.08 at 7.5PH and 0.20, 0.16, 0.12, 0.08 at 9.0PH. The percentage of mortality increased with an increased in toxicant concentration and duration of exposure. It was also observed that low PH (6.5) increases the toxicity of Nuvan in *Rasbora daniconius*. Similar observations were recorded in *Barilius bendelesis*. (Deoray and Wagh 1987) Increase of toxicity at low PH may be due to hydrolysis of toxicant at low PH the resulting products isomers of which are more toxic than the original compound. During present it was also observed that toxicity decrease at high PH (PH 9.0) Similar observations were recorded by Ali (1982) Kamble (1983) (Holomet *et. al* 1980) (Rao and Murty 1980). The fish exposed to Nuvan show certain behavioural changes like excitation, fast

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Research Article

Seasonal Biochemical Changes in the Muscles of Freshwater Fish *Mystus cavasius* (Ham)

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Mystus cavasius, Krishna River, Protein, Glycogen, Lipid and Ascorbic acid

Abstract

Fresh water fish *Mystus cavasius* were collected from Krishna River near Audumber during January 2013to Dec 2014. They were brought in to the laboratory and then scarified for further studies. The tissue was processed for Protein, Glycogen, Lipid and Ascorbic Acid estimations. There is no any drastic variation found in the protein content. Its highest value was observed in the month of November (19.4984 ±0.05954) and lowest value observed in the month of February (14.96984±0.0143). Glycogen level is ranges in between 0.08230 ± 3.4576^{-3} to 0.613595 ± 2.6137^{-3}. Ascorbic acid ranges between 0.08663 ± 4.5022^{-3} to 0.49774 ± 9.432^{-3}. The lipid levels in the muscles ranges between 0.11619 ±3.24155^{-3} to 0.5951 ± 3.5368^{-3}. It is maximum in the months of January and September and lowest in the months of May-June (Spawning period) and October-November (Spent season).

INTRODUCTION

Fish provide a good source of readily digested high quality animal protein, fat, mineral and vitamins specially vitamin A, D and E. Also fish plays important roles in the prevention and management of many human diseases such as heart disorders, neurological diseases, mood swings and when fish is substituted for beef, the nitrogen is utilized better resulting in a decreased excretion of uric acid in the urine (Thilsted and Roos, 1999 and Conquer and Holub, 2002). Fish protein produces a good influence on the assimilation of magnesium, phosphorous and iron. Fat in aquatic organisms are associated with a variety of function reflecting special biochemical and environmental conditions. fats are the major metabolic reserve in most fish (Lovell, 1989).

Glycogen is a vital source of muscle energy of live animal and it is utilized during muscular action and stored up during rest. Glycogen in different tissues shows remarkable difference Nutritive value of fish is recognized all over the world. The lipids are the most important biochemical compounds of fish (Akpinar, 1986). Fish store the lipids in various organs; particularly in muscles and liver. On the contrary, the mammals store in adipose tissue. Generally fish lipids are known to contain n-3 series unsaturated fatty acids which reduce the level of serum triglyceride and cholesterol. As a result of this sudden heart attacks ratio and the risk of thrombosis, which is mainly the reason for heart attacks are reduced. Some researchers reported that the n-3 fatty acids facilitate some cancer treatments such as breast tumours (Konat *et al*., 1999; El-Sayed *et al*., 1984).

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SEASONAL BIOCHEMICAL CHANGES IN THE MUSCLES OF FRESH WATER FISH *LABEO CALBASU (HAM)*

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ABSTRACT
The freshwater fish *Labeo calbasu* (Ham) were collected monthly from Krishna River during January 2013to Dec 2014 and were obtained from fisherman. There is no any drastic change was observed in the Protein content in the muscles, but shows its lowest value in the month of October (12.92486 ± 0.0516) and highest value is observed in the month of June (19.5555 ± 0.0437).Glycogen level steadily decreases from the month of January to December. Its highest value is recorded in the month of February (0.68175 ± 2.5666^{-3}) and lowest value was observed in the month of December (0.24058 ± 6.42132^{-3}). Ascorbic acid level shows two peak values in the months of March to June(0.3525 ± 6.4549^{-3} to 0.4316 ± 0.01123) and October to December(0.3133 ± 8.2881^{-3}). Lipid in the muscles are found at higher level in the months of August (0.55995 ± 3.5603^{-3}), December (0.6069 ± 2.4842^{-3}) and January (0.6097 ± 2.8538^{-3}). All these results show that the biochemical constituents were greatly influenced by the breeding activity.

Key words: *Mystus cavasius*, Protein, Glycogen, Lipid and Ascorbic Acid.

Introduction

Fish and shellfish are the primary sources of animal protein and valuable in the diet because they provide a good quantity (usually 70% or more) or protein of high biological value, particularly sulphur containing amino acids (Latham, 1997). Next to meat, fish is the only protein source that contains all the essential amino acids in right proportion and called complete protein. Consumption of fish provides important nutrients to a large number of people in the world and makes a very significant contribution to nutrition. Glycogen is a vital source of muscle energy of live animal and it is utilized during muscular action and stored up during rest. Glycogen in different tissues shows remarkable difference Nutritive value of fish is recognized all over the world.

Fish are not only beneficial protein and Glycogen source but also contain considerable amount of unsaturated fatty acids, and thus the studies on lipid biochemistry have been considered so important recently (Farkas and Csengeri, 1976; Farkas *et. al.*, 1978; Dave *et. al.*, 1976; Akpinar, 1986). Ascorbic acid acts as an essential factor for normal growth in rainbow trout *Salmo gairdneri* (Tucker and Halver, 1986).The accumulation of ascorbic acid at the site of wound healing was found by Gould (1963).

Therefore the fish is an important source of food for mankind all over the world from the times immemorial. So they are beneficial nutrition sources (Weatherley and Gill, 1998). In general, the biochemical composition of the whole body indicates the fish quality. Therefore, proximate biochemical composition of a species helps to assess its nutritional and edible value in terms of energy units compared to other species. Variation of biochemical composition of fish flesh may also occur within same species depending upon the fishing ground, fishing season, age and sex of the individual and reproductive status. The variation in the chemical composition of fish is closely related to feed intake, migratory swimming and sexual changes in connection with spawning. Salam et. al., (1995) studied Biochemical composition of body muscles and its caloric contents of tawes (*Puntius gonionotus*, Bleeder) and stated that variation in proximate composition of fish flesh may vary with species variation, season, age and feeding habit of the fish.

Biochemical composition, nutritive values and seasonal variation in the chemical composition of fish tissues associated with reproductive cycle were reported by (Al-Dubaikel, 1996 and Al-Mhanawi, 2001). Similarly, the present work has been undertaken to study the seasonal biochemical changes in the muscles of *Labeo calbasu* (Ham) and to report their nutrient composition from the public health point of view.

Material and Methods

The freshwater fish *Labeo calbasu* (Ham) were collected monthly from Krishna River during January 2013to Dec 2014 and were obtained from fisherman. They were brought in to the laboratory and then scarified for furthers studies. The muscle was removed

2015-16

Studies on seed morphometry of *Habenaria* species from Western Ghats, India[a]

Bhaurav Tukaram Dangat[1]* & Rajaram Vithoba Gurav[1]

Keywords/Mots-clés : *Habenaria*, Orchidaceae, percent air space/pourcentage du volume d'air, seed morphometry/morphométrie des graines, Western Ghats.

Abstract

Seed morphometry of eighteen species of *Habenaria* was studied using light and scanning electron microscopy. These species showed remarkable variation in seed colour (off white, brown and yellow) and shape (fusiform, spathulate and filiform). Seven species were found to have elongate seeds, while the remaining species had truncate seeds. The number of testa cells was found to be more or less constant at the genus level, and with straight, sinuous, or undulate walls. Based on seed and embryo volumes, varied amounts of air space exist within the genus. Seeds with the highest percentage of air space were found in *H. gibsonii* (84.91 ± 11.34%) followed by *H. fracifera* (84.77 ± 9.45%) and *H. digitata* (81.56 ± 11.23%). These species show wide geographical distribution within India and abroad. On the other hand *H. grandiflorifornis* which is endemic to India with restricted distribution shows the lowest percentage of air space (0.86 ± 0.46%). The present study shows that there is direct correlation between percent air space in the seeds, buoyancy of seed and distribution of species. Morphometric analysis of *Habenaria* seeds indicated that the length, width and number of testa cells as well as the presence/absence of reticulation on seed coat walls and the nature of this reticulation are of diagnostic value for delimitation of different species.

Résumé

Étude morphométrique des graines des espèces d'*Habenaria* des Western Ghats, Inde – La morphométrie des graines de dix-huit espèces d'*Habenaria* a été étudiée par microscopie optique et par microscopie électronique à balayage. Ces espèces

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Stomatal studies in the genus *Habenaria* (Orchidaceae)[a]

Bhanrav Tukaram Dangat[1]* & Rajaram Vitheba Gurav[1]

Keywords/Mots-clés : anatomy/anatomie, *Habenaria* , Orchids/orchidées, stomata/stomates, Western Ghats.

Abstract

During the present investigation stomatal length, width, aperture size, stomatal density and stomatal index of eighteen species of *Habenaria* were measured. It has been observed that, in the genus *Habenaria*, stomata were distributed on the lower epidermis only that is the leaves are predominantely hypostomatic. In all the species studied the stomata were anomocytic. The maximum length (L) and the maximum width (W) of the stomata were observed on *Habenaria foliosa* var. *foetida* (L= 77 ± 0.9 µm, W= 63 ± 2.7 µm) while the minimum measurements were observed on *H. furcifera* (L= 33 ± 1 µm, W= 28 ± 1.3 µm). Highest stomatal density was observed on *H. furcifera* (78/mm²) and the lowest density (20/mm²) in *H. foliosa* var. *foetida*. The stomatal index was highest on *H. furcifera* (37) followed by *H. suaveolens* (35.1) and lowest on *H. foliosa* var. *foetida* (12.7) followed by *H. plantaginea* (15). In respect to stomatal size, stomatal density and stomatal index a negative correlation was observed.

Résumé

Études des stomates chez le genre *Habenaria* (Orchidaceae) – Au cours de l'étude présentée ici la longueur et la largeur des stomates, la taille de leur ouverture, leur densité et l'indice stomatique ont été mesurés chez dix huit espèces d'*Habenaria*. Nous avons observé que, chez ce genre, les stomates sont répartis sur le seul épiderme inférieur, autrement dit que les feuilles sont principalement hypostomatiques. Chez toutes les espèces étudiées les

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RESEARCH FRONT

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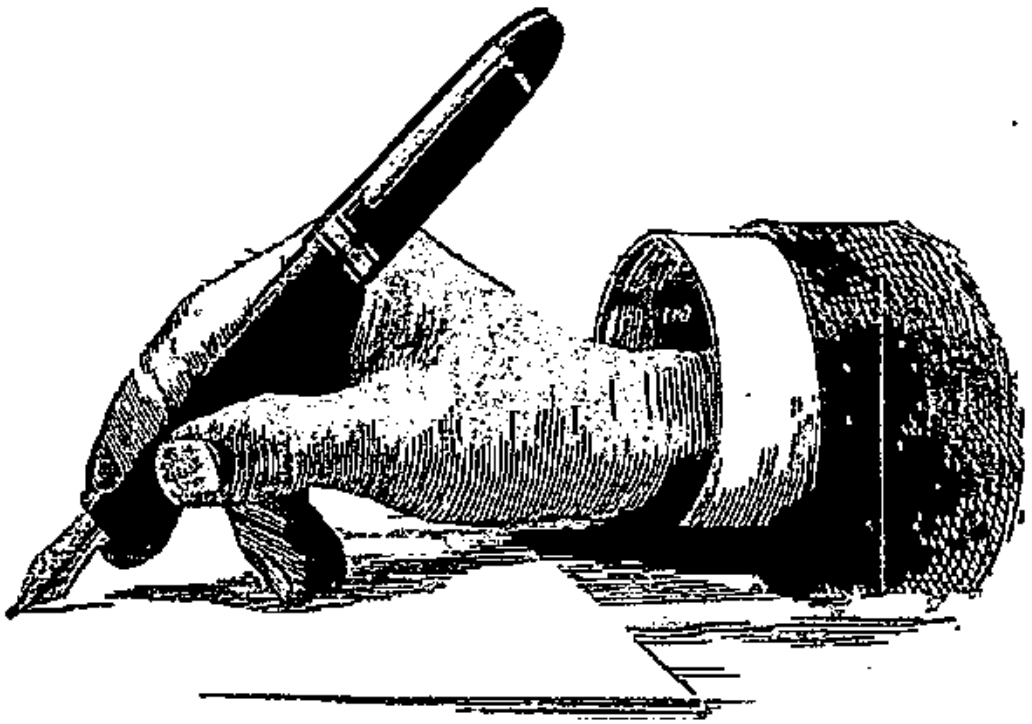
प्रसारमाध्यमांचे बदलते स्वरूप आणि नोकरीच्या संधी



संपादक

प्रा.डॉ.शिवलिंग मेनकुदळे

प्रिं.डॉ.गणेश ठाकूर

रयत शिक्षण संस्थचे,
छत्रपती शिवाजी कॉलेज, सातारा
प्रसारमाध्यमांचे बदलते स्वरूप आणि रोजगाराच्या संधी

अनुक्रमणिका

प्रसार माध्यमातील रोजगाराच्या संधी

प्रा. डॉ. अशोक सदाशिव पवार
श्रीमती मीनलबेन महेता कॉलेज
ऑफ आर्टस अॅण्ड कॉमर्स, पाचगणी.

आजचे युग हे प्रसारमाध्यमांचे युग म्हणून ओळखले जाते. पाठीमागच्या 2 दशकापूर्वी जर कोणी असते की, आणखी 20 वर्षांनी प्रसारमाध्यमांचे युग अवतरणार आहे. तर त्या व्यक्तीला वेडा असते. परंतु आज हे साक्षात आपण सारेजण अनुभवत आहोत. प्रत्येक माणसाला प्रसारमाध्यमा ना कोणत्या घटकाचे वेड असल्याचे दिसून येते. प्रसार+माध्यम=विचार, मते, मनोरंजन, माहिती कार्यक्रमांचे प्रसारण करणे. हे प्रसारमाध्यमांचे महत्त्वाचे कार्य ठरते. या प्रसारमाध्यमात वृत्तपत्रे, दूरचित्रवाणी यांचा समावेश होतो. या प्रसारमाध्यमांच्या आधारे जगाच्या कानाकोपऱ्यातील सर्व कौतुक, सर्वसामान्यापर्यंत नेऊन पोहोचवण्याचे महत्त्वपूर्ण काम ही प्रसार माध्यमे करतात. घांगल्याचा प्रसार करणे हे प्रसार माध्यमांचे आद्यत्तम कर्तव्य ठरते. त्यानुसार ही प्रसारमाध्यमे कर्तव्याला जागताना, सामाजिक बांधिलकी स्वीकारताना दिसतात.

प्रसारमाध्यमांना इंग्रजीत 'मीडिया' असा समूहवाचक शब्द वापरला जातो. हा शब्द 19 कामावर पडत नव्हता, परंतु गेल्या 10 ते 15 वर्षात खास करून 7 ते 8 वर्षातच 'मीडिया' "प्रत्यक्ष शब्द रोजच्या व्यवहारातले अगदी सर्रास वापरातले शब्द बनल्याचे दिसून येते. प्रसार माध्यमांविषयी मांडताना डॉ. विश्वास मेहेंदळे यांनी " ढोवळमानाने प्रसारमाध्यमांचे तीन प्रकार सांगितले आहेत. डमकपं 2द्ध लिकपव टपेनंस 3द्ध ब्मीम्त डमकपं " असे तीन प्रसार माध्यमांचे प्रकार सांगितले विश्वास मेहेंदळे यांनी सांगितलेल्या वरील तीन प्रसारमाध्यमापैकी तिसऱ्या माध्यमात अनेक प्रकार नावे घेता येतात. त्यामध्ये जाहिरात, जनसंपर्क, इंटरनेट, मोबाईल, कीर्तन, प्रवचन, भारुड, गोंधळ

मीडियाद्वारे जगाच्या कानाकोपऱ्यातील माहितीची देवाण घेवाण होऊ लागली. प्रसारमाध्यमांना जीवनात इतके स्थान मिळण्याचे कारण म्हणजे त्यातून निर्माण झालेल्या रोजगाराच्या संधी येते. प्रसारमाध्यमांचे कार्य, व्याप्ती, स्वरुप यांचा विचार करताना त्यातून निर्माण होणाऱ्या रोजगार आपल्या लक्षात येतील. त्याविषयीचे विवेचन पुढीलप्रमाणे मांडीत आहे.

अ) वृत्तपत्रातील रोजगाराच्या संधी :–

आपल्या रोजच्या जीवनात वृत्तपत्राचे महत्त्व सर्वमान्य झाले आहे. विशेषतः शासनव्यवस्था असणाऱ्या देशांमध्ये तर वृत्तपत्राचे स्थान निश्चित मोठे आहे. जेव्हा सरकार नेतेमंडळी यांच्याकडून दाद मिळत नाही, तेव्हा सामान्य माणूस वृत्तपत्राकडे येतो. त्याचा वृत्तपत्र विश्वास असतो. आपले गाऱ्हाणे मांडण्याचे लोकशाही मार्गावरचे हक्काचे साधन म्हणून सर्वसामान्य वृत्तपत्राकडे पाहतो. अशा वृत्तपत्रांना काहीवेळा प्रादेशिक, किंवा प्रांतीय स्वरुप आलेले दिसून असले तरी सर्व वृत्तपत्रांचे कार्य हे सारखेच असते. त्यांचे कामाचे स्वरुपही सारखेच असते. बातम्या करणे, त्याची छायाचित्रे उपलब्ध करणे, विविध सदराखाली अनेक विषयावर लेखन करणे, संकलन माहितीची व्यवस्थित मांडणी करणे, वितरण करणे अशी अनेक कामे वृत्तपत्र माध्यमात करावी

...न्यासाठी वेगवेगळ्या व्यक्तींची निवड करुन त्यांच्याकडे पात्रतेप्रमाणे काम सोपविले जाते. त्यामुळे ...रोजगाराच्या संधी प्राप्त होत असल्याचे दिसून येते.

...चेता :–

विविध ठिकाणी घडलेल्या घटना, माहिती, शासन निर्णय, न्यायालयाचा निर्णय, जागतिक आंतरराष्ट्रीय ... घडणाऱ्या घडामोडी, समाज परिवर्तन घडवून आणण्यासाठी आयोजित केलेल्या विविध कार्यक्रमांची ... क्रीडा, व्यापार, अर्थ, कीडा क्षेत्रात घडणाऱ्या घडामोडी वृत्तपत्रात छापल्या जातात. गावात, खेड्यात, ... घडलेल्या घटना, समाजाच्या समस्या, विद्यार्थी, पालक, शिक्षक यांच्यातील संवाद, बदलत्या समाज ... अनेक घडामोडी बातमीसाठी उपयुक्त ठरतात. मात्र त्याचे सविस्तर आणि क्रमशः लेखन करुन ... कार्यालयाला अचूक बातमी पोहोचविण्याचे काम पत्रकाराला करावे लागते. त्यापोटी त्याला ... मानधन देण्याची व्यवस्था वृपत्राचे व्यवस्थापकीय मंडळ करीत असते. हा पत्रकार चार पाच गावात, ... शहरात, जागात, प्रदेशात नेमला जातो. तो जितक्या बातम्या संकलन करुन वृत्तपत्राच्या कार्यालयाकडे ... त्याप्रमाणात त्याला मानधन मिळवून आपल्या कुटुंबाचा खर्च चालविता येतो. त्यामुळे वृत्तपत्र ... पत्रकारीता कला ही एक रोजगाराची महत्त्वपूर्ण संधी ठरते.

...चित्रकार :–

वृत्तपत्रामध्ये काही घटनांच्या संदर्भात माहिती देणारी छायाचित्रे छापली जातात. ती छायाचित्रे ... परिस्थितीतील असतात त्याचप्रमाणे ती मौलिक आणि दुर्मिळही असू शकतात. छायाचित्राद्वारे बातमीचे ... करणे सहज व सोपे ठरते. त्याचप्रमाणे लिहिलेला मजकूर व घडलेली घटना समजून घेण्यासाठी ... छायाचित्रांचा उपयोग चांगल्याप्रकारे वाचकांना होत असतो. त्यामुळे वृत्तपत्रांचा खप वाढून ... होण्यास मदत होते. म्हणून वृत्तपत्रामध्ये छायाचित्रांना महत्त्व प्राप्त झालेले दिसून येते. ... बातमी प्रसिद्ध होण्यासाठी छायाचित्रे महत्त्वाची भूमिका पार पाडतात. पत्रकारितेत छायाचित्रे ... ठरत असल्याने ज्यांच्याकडे छायाचित्र टिपण्याची कला अवगत आहे. अशा व्यक्तींना रोजगाराची ... शकते.

...क :–

वर्तमानपत्रातील एकूण संपादकीय मजकुराचा समन्वय करणारी व्यक्ती म्हणजे वर्तमानपत्राचा संपादक ... वर्तमानपत्रामध्ये येणाऱ्या सर्व मजकूराची कायदेशीर जबाबदारी संपादकाची असते. संपादक हा ... सर्वच घटकांचा आणि एकूणच व्यवस्थेचा एक जबाबदार घटक असतो. त्याला सतत जागरुक ... सावधानी असावे लागते. पत्रकारितेत चांगला अनुभव असलेल्या व्यक्तीची निवड संपादक पदावर ... त्याचबरोबर त्या व्यक्तीने पत्रकारितेतील उच्च पदवी मिळविलेली असणे आवश्यक आहे. ... अनुभव असणाऱ्या व्यक्तीला संपादकाच्या माध्यमातून रोजगाराची संधी उपलब्ध होते.

...दक :–

वर्तमानपत्रातील सर्वाधिक महत्त्वपूर्ण व्यक्ती म्हणजे उपसंपादक होय. वृत्तपत्रात येणारा सर्व मजकूर ... ला शीर्षक योजना करुन तो योग्य जागेत विशिष्ट पानावर छायाचित्रासह देण्याची जबाबदारी ... वर असते. याद्वारे माध्यमातून वर्तमानपत्रात रोजगाराची मिळते.

...यातील मुद्रण कामगार :–

संपादकाने अथवा उपसंपादकाने (कार्यकारी संपादक) यापैकी कोणीही निश्चित केलेल्या बातम्यांचे ... हे मुद्रणालयातील कामगारांचे काम असते. त्यासाठी मुद्रणालयातील कामगार मुद्रणालयातील

कौशल्य प्राप्त कोर्सेस केलेले असावे लागतात. मुद्रणालयातील ज्ञान कौशल्ये प्राप्त केलेल्या [illegible] चांगल्या पगारासह मुद्रणालयात रोजगार मिळतो.

6) मुद्रित शोधक :–

वृत्तपत्राचा अंक तयार होताना बातम्या आणि लेखांची पाने प्रुफरीडर तपासून त्यातील [illegible] करतात आणि पान पुढे पाठवतात. संपादकीय विभागातच प्रुफरीडर काम करतात. शुद्धलेखनांच्या [illegible] ज्ञान तसेच भाषा वापराचे कौशल्य मुद्रित शोधकांकडे असावे लागते. भाषा शुद्ध लेखनाचे ज्ञान [illegible] तज्ज्ञांना वृत्तपत्र व्यवसायात चांगली मागणी आहे.

7) वृत्तपत्रासाठी लेखन :–

वृत्तपत्रात विविध सदरे किंवा स्तंभ लेखन अपेक्षित असते. आरोग्य, शिक्षण, सामाजिक [illegible] चर्चा, अध्यात्म, आहार, शेती, राजकारण, सृजनात्मक लेखन कथा, कविता, विनोदी चुटके, [illegible] विषयावर ठराविक दिवस ठरवून लेखन प्रसिद्ध केले जाते. असे विविध प्रकारात लेखन करणे ही [illegible] मानली जाते. याशिवाय मुलाखत घेणे, समीक्षणात्मक लेखन करणे, चित्रपटावर टिपणे करणे. यातून [illegible] कमाई करता येते. तसे पाहता रोजगाराची उत्तम संधी मिळते.

याशिवाय वृत्तपत्र छापल्यानंतर त्याच्या पानांच्या घड्या घालणे, गठ्ठे बनवणे, [illegible] वितरकांपर्यंत पोहोचविणे, वितरकाने ते वाचकांच्यापर्यंत पोहोचविणे. अशा कितीतरी रोजगाराच्या [illegible] या प्रसार माध्यमातून होत आहेत.

ब) आकाशवाणी प्रसार माध्यामातील रोजगाराच्या संधी :–

आकाशवाणी हे दूरदर्शन येण्यापूर्वीच्या काळातील अत्यंत प्रभावी असे श्राव्य माध्यम [illegible] नभोवाणी असेही म्हटले जाते. हे माध्यम देशाच्या कानाकोपऱ्यात माहिती पाठविणे, लोकशिक्षण [illegible] प्रभावी असे संप्रेक्षण माध्यम आहे. लोकसंस्कृती, लोककला प्रादेशिक भाषांतील विविध वाङ्मयीन [illegible] संवर्धन करण्याचे एक महत्त्वाचे माध्यम आहे. या माध्यमाद्वारे रोजगाराच्या विविध संधी उपलब्ध [illegible]

1) आकाशवाणीवरील बातम्यांचे लेखन :–

बातम्या हा आकाशवाणीवरील सर्वात जास्त श्रोतृवर्ग लाभलेला कार्यक्रम आहे. [illegible] प्रादेशिक, राष्ट्रीय, आंतरराष्ट्रीय अशा वेगवेगळ्या स्वरूपाची बातमीपत्रे प्रसारित होत असतात. [illegible] क्रीडाविषयक, विज्ञानविषयक, व्यापार, शेती, उद्योगधंदे याविषयी स्वतंत्र वार्तापत्रे [illegible] आकाशवाणीवरील बातमीपत्र साधारणपणे 10 ते 15 मिनीटांचे असते. त्यात प्रथम आकाशवाणी [illegible] व बातम्यांचे स्परुप सांगणारी उदघोषणा केली जाते. नंतर ठळक बातम्या सांगून झाल्यानंतर [illegible] सविस्तरपणे विश्लेषण केले जाते. शेवटी पुन्हा ठळक बातम्या दिल्या जातात. अशा प्रकारे [illegible] असल्याने त्या बातम्यांची रचना करणे म्हणजेच लेखन करणे ही एक कला ठरते. ही कला [illegible] घेतली तर आकाशवाणीवर बातमी विभागात काम करण्याची संधी मिळते.

2) रुपक लेखन :–

आकाशवाणीवरुन रुपक प्रसारित होते. हे रुपक म्हणजे काय? असे कोणी विचारले [illegible] अवघड होते. रुपक म्हणजे ज्या कार्यक्रमात भाषण, मुलाखत, चर्चा, नाटक, काव्यवाचन [illegible] योग्यतऱ्हेने वापर केलेला असतो. त्याला रुपक म्हणतात. रुपकांसाठी करायचे लिखाण दोन [illegible] येते. (1) लेखकाकडून लिहून घेतलेले लिखाण (2) निर्मात्याने स्वतः केलेले लिखाण

रुपक ही श्राव्य माध्यमाची देणगी आहे. सगळ्या प्रकारच्या कायकमाचा उपयोग [illegible] माहिती पुरविणे, हे या कार्यक्रमाचे वैशिष्ट्य आहे. रुपक निर्मिती ही एक कला आहे. ध्वनीमुद्रण [illegible]

प्रत्यक्ष लेखन, पात्र योजना संगीत तालीम यातून रुपक उभं राहते. ते उभं करण्याची कला ही उपलब्ध करुन देणारी संधी असते.

आकाशवाणीवरील जाहिरात :–

'जाहिरात' हा आजच्या युगाचा एक महत्त्वपूर्ण भाग बनला आहे. जाहिरात ही वृत्तपत्र, चलचित्र, कॅलेंडर, होर्डिंग्ज, आकाशवाणी, दूरचित्रवाणी इत्यादी माध्यमाद्वारे केली जाते. या माध्यमात आकाशवाणीवरील जाहिरात कमी खर्चाची असते. शिवाय ती जास्तीत जास्त लोकांच्या पर्यंत पाहोचते. आकाशवाणीवरील जाहिरात ही 10 सेकंद ते 60 सेकंद अशा वेळेत सादर करावी लागते. त्यामुळे कमी वेळेत किफायतशीर फायद्याची आणि किंमतीची माहिती लोकांपर्यंत पोहोचवण्यासाठी जाहिरातीचे लेखन आणि परिपूर्ण होणे आवश्यक आहे. त्यासाठी व्यक्तीकडे जाहिरात लेखनाची कला असावी लागते. लिहिलेल्या जाहिरातीचे प्रसारण होऊन वस्तूचा खप वाढवण्याचे सामर्थ्य त्याच्या जाहिरात लेखनात असेल तर अनेक कंपन्याची जाहिरातीसाठी त्या व्यक्तीकडे रीघ लागते. त्यातून त्याला पैसा कमावता येतो.

याशिवाय निवेदक, उद्घोषक, परिसंवाद घेणे, मुलाखत घेणे, श्रोत्यांच्या पत्रांना उत्तरे देणे अशा रोजगाराच्या संधी आकाशवाणी प्रसारमाध्यमाद्वारे उपलब्ध होतात.

दूरचित्रवाणीवरील रोजगाराच्या संधी :–

आजच्या युगात अत्यंत प्रभावशाली आणि लोकप्रिय प्रसार माध्यम म्हणून दूरचित्रवाणी ओळखले जाते. मानवी जीवनातील स्थान अनन्यसाधारण असे बनले आहे. ते यंत्राधिष्टित माध्यम आहे. या माध्याद्वारे काम करण्यासाठी अनेकांची मदत घ्यावी लागते. त्यामुळे अनेकांना साहजिकच रोजगाराच्या संधी उपलब्ध होतात.

कॅमेरामॅन :–

दूरचित्रवाणी हे प्रसार माध्यम दृक–श्राव्य आहे. त्यातही दृश्य रुपावर भर अधिक दिलेला दिसून येतो. त्यामुळे दृश्य टिपण्याला साहजिकच महत्त्व प्राप्त होते. दूरचित्रण करणारा कॅमेरा अनेक गोष्टी साधू शकतो, लपवूही शकतो. म्हणूनच कॅमेऱ्याच्या कामाची दखल घेतली जाते. याचाच अर्थ असा की कॅमेरा विषयीची माहिती असणे, त्याची परिभाषा समजणे संहिता लेखकाला फायदयाचे ठरते. कॅमेऱ्याचे ठेवलेले स्थान, त्याच्या कॅमेऱ्याच्या हालचाली, कॅमेऱ्याचा कोन यांच्यावर प्रभाव गाजवणारे उत्कृष्ट करतात. कॅमेऱ्याची माहिती असणाऱ्यांना दूरचित्रवाणीत रोजगाराची चांगली संधी प्राप्त

संहिता लेखन (स्क्रिप्ट):–

दूरचित्रवाणीसाठी लिहिलेली संहिता हा मानातल्या कल्पनेला, पायरी पायरीने किंवा टप्याटप्याने सुटसुटया दृश्यात विभागेपर्यंतचा प्रवास असतो. संहिता म्हणजे कार्यक्रमाच्या चित्रिकरणासाठी आपल्या मनातील कल्पना किंवा विषय कोणत्या दृश्यामधून मांडायचा आहे. त्याच्याबरोबर कोणत्या प्रकारचे निवेदन संवाद हवे आहेत; कोणत्या इतर ध्वनींचा वापर करायचा आहे. यासंबंधीच्या तपशीलवार व क्रमशः निर्मात्याजवळ कागदावर लिहून देणे म्हणजे संहिता लेखन करणे होय. ही कला अवगत असणाऱ्यांना दूरचित्रवाणीच्या क्षेत्रात चांगली संधी मिळते.

निर्माता :–

संहिता लेखन हातात आल्यानंतर निर्मात्याचे काम सुरु होते. निर्मात्यात आणि संहिता लेखकात चर्चा घडावी लागतो. निर्माता संहिता लेखकाच्या कल्पनेला दृश्य रूप देतो. त्यावेळी त्याच्या काही सूचना

असू शकतात, प्रसंगी संहितेत बदल करण्याची गरज भासू शकते. दर्शकाला समोर ठेऊन तो दरम्यान घालत संहितेला आकार देणे हे त्याचे काम असते. कार्यक्रमाची निर्मिती ही निर्मात्यावर बरीच अवलंबून

4) मालिका :–

दूरचित्रवाणीवर विविध मालिकांचे प्रसारण होत असते. या मालिकांमधून नायक, नायिका, कुटुंबे, नात्यातील पात्रे, बाहेरच्या समाजातील पात्रे अशा विविध भुमिका करण्यासाठी कलावंतांची ज्यांच्या अंगी अभिनय करण्याची, पूर्ण क्षमता असते अशा व्यक्तीला एका खास पात्राकरीता दूरचित्रवाणीवरील मालिकांचे स्वरुप कौटुंबिक, रहस्यप्रधान, विनोदी, भयकारी, ऐतिहासिक/पौराणिक त्यातील भूमिका करण्याची संधी अनेकांना मिळते.

5) संगीतविषयक कार्यक्रम :–

भारतीय चित्रपटात संगीताला जेवढे महत्त्व आहे, तेवढेच दूरदर्शनवरील कार्यक्रमातही लोकप्रिय चित्रपटांचे प्रसारण दूरचित्रवाणी करीत असते. त्यावेळी निवेदक, वादक, गायक अशा मिळते.

6) खेळ स्वरुपातील कार्यक्रम :–

विविध वयोगटातील व्यक्तींना कलागारात बोलावून त्यांच्यात विविध प्रकारच्या स्पर्धा जातात. प्रश्नमंजुषा, सोपे शारीरिक/बौद्धिक खेळ/ अंताक्षरी/गायन/नृत्यस्पर्धा यातून रोजगाराची संधी मिळते.

7) चर्चात्मक कार्यक्रम :–

एखाद्या विषयासंबंधी खुली चर्चा घडवून आणणे, मुलाखतीद्वारे चर्चा करणे, यामध्ये कौटुंबिक, भावनिक अशाप्रकारचे विषय असतात. शैक्षणिक कार्यक्रम, वृत्ताधारित कार्यक्रम, माहितीपर इ. कार्यक्रमामुळे रोजगाराच्या संधी उपलब्ध होतात.

वातमी प्रसारण, निवेदन, पडद्यामागील वेशभूषा, रंगभूषा, परिसर सेट उभा करणे, शब्द असणे यामुळेही रोजगाराच्या संधी उपलब्ध होतात.

संदर्भ ग्रंथसूची :–

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Analytical Methods

Development of a solvent extraction system with 4-heptylaminopyridine for the selective separation of platinum(IV) from catalysts, anticancer injections and water samples

Author affiliation

Abstract

In this paper, the solvent extraction of platinum(IV) from ascorbate media (0.007 M) has been studied by equilibrating the aqueous phase (pH 1.5) with 10 mL of 0.06 M 4-heptylaminopyridine (4-HAP), as a novel anion exchanger, diluted in xylene for 2 min. The extracted metal was separated from the organic phase *via* stripping with water solution (2 x 10 mL). The effect of various parameters, such as pH, extractant concentration, weak acid concentration, equilibrium time, stripping agent, aqueous to organic volume ratio and diluent, on the extraction of platinum(IV) was investigated. The extracted species were evaluated *via* log *D* *vs.* log *C* and the species appeared to be in a ratio of 1 : 3 : 1 (metal : acid : extractant). The selectivity of the method was checked by separating platinum(IV) from binary and ternary mixtures of associated metal ions as well as platinum group metals (PGMs). The extraction separation of platinum(IV) from catalysts, anticancer injections, Pt–Rh thermocouple wires and water samples has been achieved.

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HUMAN VALUE OF MAHATMA BASAVESHWARA

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Abstract: Basavanna was a 12th century Hindu Philosopher, Statesman, Kannada poet in the Shiva focussed Bhakti-movement and social reformer during the reign of Kalachuri dynasty King Bijjal in Karnataka.The movement of reformation inaugurated by Bhasavanna had its far reaching effect upon the social life of the Nation. So long as we view Basavanna in the context of Virashavisim, we miss his personality and his profound teaching. Though he was born in Karnataka, he belonged to the whole of mankind for his heart relented for the poor and downtrodden everywhere. He taught us one of the main principles of democracy by saying that the roots of social life are embedded not in the cream of the society but in the scum of the society.

Keywords: Human Value, Basavanna, Democracy

Introduction:

It is evident that the seeds of modern concepts of 'Sarvodaya' and total Revolution, were sowed in Karnataka, during 12th century itself by great revolutionary Basavanna. His practical approach and act of establishment of Kalyan Rajya (Welfare – State) brought a new status and position all the citizens of the society, irrespective of class, caste, creed and sex.

Being a born progressive activist Basavanna revolted against all the social evils of the traditionalistic society and brought a drastic change in various tact's. We often talk about the Human Rights in this 21st century, but these 'Human Rights', were being enjoyed by Sharanas (citizens of welfare society) during 12th century itself, because of Bhasavannas revolution, through which they expressed their revolutionary and reformist ideology in very simple Kannada language.

Who is Bhasaveshwar?

Basavanna was a 12th century Hindu Philosopher, Statesman, Kannada poet in the Shiva – focused Bhakti movement and a social reformer during the dynesty king Bijjala. He spread social awareness, rejected gender or social discrimination, superstitions. He was a mystic, a statesman by profession, a man of letters by taste, a humanist by sympathy and social reformer by conviction.

Early Life

Basavawas born about 1131 AD. In the town of Bagavedi in Bijapur district Karnataka. His fathers name was Madanas and mother Madalmbike at Brahmin family. He was named Basava, a Kannada form of Sanskrit Vrishabha in honor of Nandi and the local Shairism. As a religious tradition, he was initiated with the holy thread 'janivara', in Upanayana at the early age of eight years. Basava revolted against this tradition, cut threw his janivara, left home and went to Kudalasangam.

Education

Basavanna spent ten years with his Guru in Kudal-Sangama. He has completed study of Vedas, Purana. He was disgusted to see ill-culture in the name of God and felt pity for the illiterate innocent non- Brahmins being deceived in the name of God.

Appointed as Karanika (Accountant)

After Busava's education he went to Kalyana, where the Kalchuri King Bijjala was ruling. Basava's highly intellectual personality saw Bijjala and appointed as Karanika (Accountant) in the initial stage in the court of king and later he became the prime minister of Kalyan Kingdom, after proving his administrative ability.

At this state Basav looked around the socio-economic status of the then society where most of the static, superstitious and anti-social elements were ruling. There was much gap between haves and havenots and reach people were harassing and sex discrimination made the lives of women very pathetic. Basavana revolted against all these evils and he himself started practicing the

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A Study on Significance of Employee Engagement in Organization for increasing Organizational Performance, Employee's Productivity and Employee's Retention

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Abstract

The term employee engagement has gained popularity over the past ten years. It is very important to engage organization employees, as they are the ones who have a significant influence on the profit and sustainability of the entire organization and quality of their day-to-day performance contributes to the quality of the relationships with organization clients, customers and the public.

This research paper deals with the importance and significance of employee engagement in organization for organization better performance, employee productivity and employee retention. The source of the information has been taken from the previous articles, journals, text books on the employee engagement. The descriptive method is used to explain the significance of employee engagement in organization.

Keywords: Employee Engagement, Organizational performance, Employee's productivity and employee retention.

1. Introduction

Different professions have their own specifics, which need to be addressed during the engagement building process. For example, for hospital workers, safety issue is of a high importance as they deal with different kinds of sicknesses, whereas for teachers or counselors, the issue of stress and emotional exhaustion maybe of more important. In manufacturing industries, Standard Operating Procedure and safety measurement is very importance while working with machines. One can argue that common tools for employee engagement can be used for all types of employees.

Employee Engagement is the extent to which employee commitment, both emotional and intellectual, exists relative to accomplishing the work, mission, and vision of the organization. Engagement can be seen as a heightened level of ownership where each employee wants to do whatever they can for the benefit of

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Role of NGO's in Socio Economic Empowerment of Marginal Societies Women

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Abstract: The NGO area in India is an indistinguishable piece of society. NGOs are all around perceived for their uncommon capacity to come to the grassroots. The legislature of India is in charge of deciding the general approach bearings for the marginal society women's advancement yet can't the only one realize reasonable change in the lives of marginal society women. The investigation has concentrated on the economic circumstance of the marginal society women both urban and marginal society women zones being created through the projects taken by the NGOs. The target of the contemplated needs to look at the effect of NGOs on the economic circumstance of the marginal society women in India and changes happened because of the NGOs exercises. Information was gathered through up close and personal meeting and has been broke down on a similar premise.

Keywords: NGO, Women, Empowerment

Introduction:

Standard HRD writing neglects to fundamentally investigate how NGOs work inside the mind boggling nature of marginal society women economic improvement in India. These substances apparently can possibly change the poorest areas of India through monetary, instructive, and rural methodologies. This exploration investigates the qualities, restrictions, and conceivable outcomes of NGOs to serve the economic needs of poor marginal society women in the complex social setting of India. India's available economic circumstance does not support poor marginal society women. Economic powers extraordinarily impact NGOs' needs for marginal society women' improvement in India. Every factor influences the mind boggling nature of human improvement. This paper analyzes the degree to which these four subjects impact the needs of NGOs. and their viability towards marginal society women' advancement in India. A study of NGOs enlightens their

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Research Article

GROWTH AND PROBLEMS OF INDIAN FLORICULTURE

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Introduction

Horticulture impacts widely on human activities, more than its popular understanding as merely "gardening" would indicate. Floriculture is the branch of ornamental horticulture concerned with growing and marketing flowers and ornamental plants, as well as with flower arrangement. Because flowers and potted plants are largely produced in plant-growing structures in temperate climates, floriculture is largely thought of as a greenhouse; however, many flowers are cultivated outdoors. Floriculture is becoming a booming industry in the World today. India has an ancient heritage when it comes to floriculture. Floriculture has emerged as an economically viable diversification option in the Indian agribusiness and has captured the interest of many new entrepreneurs into agricultural sector in recent times.

Operational Concepts of Floriculture

- Floriculture is a branch of horticulture concerned with the propagation of ornamental plants with a focus on flowering plants specifically.
- Floriculture is the segment of horticulture concerned with commercial production, marketing, and sale of bedding plants, cut flowers, potted flowering plants, foliage plants, flower arrangements, and non-commercial home gardening.

Objectives

- To study the growth of floriculture industry in India
- To examine the problems of floriculture cultivation

Research Methodology

This study is based the secondary data. The secondary data was collected from various reports and documents of Horticulture Department, Government of India. This has enabled us to

analyze the trends in area, production and yield of both traditional and modern floriculture, programs and outlays for floriculture development in the Country.

Analysis of Data and Interpretation

The researcher has analyzed data on the basis of growth of floriculture and problems of floriculture.

Table No. 1
Area and Production of Floriculture in India

Year	Area	Production	Yield per hect.
2012-13	254000	1652000	6.5039
2013-14	233000	1729000	7.4206
2014-15	255000	1754000	6.8784
2015-16	259000	1799000	6.9459
2016-17	261000	1820000	6.9731

**Source: Indian horticulture database (estimated value)*

The above table shows that the area and production of floriculture. The data have been given last five years from 2012-13 to 2103-14. This data indicated that there is area and production of floriculture is continuously increasing in the last five years. It is observed that 2013 -14 yield per hectare of floriculture is highest compared to other years.

Problems of Floriculture Cultivation

Indian floriculture industry is facing a number of problems related to production, storage, packing, marketing, and transportation and in export concerned. The problems faced by floriculture production are examined as follows:

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A) Cultivation Problems

Major problems faced by the Indian floriculture industry in cultivation stage:

- High cost of plants
- Non availability of High yielding plants
- Non availability Disease Resistant plants
- Attack of Pests, Fungal and Bacterial Diseases
- Premature shedding of flower buds
- Irrigation Problem
- Electricity Problem and Non Availability of Labors

B) Climatic problems

These are the major climatic problems of floriculture industry:

- Drought
- Excess Rain
- Temperature variation
- Lack of Rain fall
- Declining Soil Fertility

C) Storage Problems

After the production stage, the most important problem faced by the floriculture industry is the storage problem. The following are the storage problems faced by the floriculture industry in India;

- Wastage of flowers due to handling damages 2.
- Seasonal Demand Variations
- Less Value Addition in Storage Technologies
- Lack of Modern Material Handling Equipment's
- Lack of adequate Cold Storage facilities
- Lack of Technology to Keep Freshness
- Lack of Storage Space for Perishable Flowers
- high Cold Storage Cost

D) Packing Problems

Packing is the most important post-harvest problem faced by the floriculture industry. The quality of the flower products depends upon the best packaging.

- Packing materials high cost
- Strict sanitary regulations of the country
- Non availability of good packing materials
- Improper grading and packing procedures
- High Labeling Cost

E) Marketing Problems

The market related challenges are the main problem in improving the economic status of floriculture producers from small growers to large. These are the major marketing problems:

- Lack of procuring agency
- Inadequate Market Information
- Delay in Payment of Sale Proceeds
- Erratic Fluctuation in Price
- High Cost of Maintenance
- Lack of infrastructure facilities
- Frequent emergence of new hybrid varieties
- Frequent change in preference of consumer
- It is high competition from other countries
- Lack of Promotional Strategies

Suggestions

- It is suggested that increase in the production of value added products like dry flowers, seeds, potted plants, micro propagated plants etc.,
- There should be technology adopted by high-tech floriculture is not possible to adopt in the traditional flower cultivation. This is due to farmers' weak economic conditions. Cost-effective technology should be provided to traditional flowers to improve their quality and compete with modern sector.

Conclusion

It is concluded that production and trade of Indian floricultural products have been consistently increasing over the last five years. By adopting modern techniques with future sight by the floriculture growers and exporters definitely overcome this challenges and obstacles in the Indian floriculture industry in future. It is concluded that majority of farmers are facing problems such as packaging, marking storage and cultivation.

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CHANGES IN THE PHOSPHORUS CONTENT DURING LEAF SENESCENCE IN SERICULTURAL CROP *MORUS ALBA* LINN.

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ABSTRACT

An attempt has been made to study the changes in the phosphorus content during leaf senescence in mulberry (*Morus alba* Linn.). The variations in phosphorus status in young, mature and senescent leaves of the mulberry cultivars VIZ. M5 (K2), V1 and S36 are recorded in figure. It is clear from the figure that, the young leaves of all the three cultivars have very high Phosphorus content. In all the three mulberry cultivars there is marked decline in the phosphorus content in the senescent leaves. Such decrease is quite significant in cultivar S36. Thus, presence of Phosphorus content in the leaves may affects silkworms, as young and mature leaves of mulberry are fed to silkworm.

Keywords – Phosphorus, *Morus alba* Linn.

INTRODUCTION-

Mulberry (*Morus alba* Linn.) leaves are used as food while rearing monophagous silkworm, *Bombyx mori* L. (Ullal and Narasimhanna 1981). Health and growth of the larvae, cacoon quality and raw silk quality are influenced by quality of leaf. Since, the physiological status of mulberry leaf is important in determining the nutritional quality, the age of leaf may influence silkworm feeding. Cacoon production depends mainly on nutrient composition of mulberry leaves (Krishnaswami *et al.*, 1971, Bhuyian, 1981). Many aspects like health and growth of the larvae, cacoon quality and raw silk quality are also influenced by quality of leaf. In addition to involving verities, different practices have been worked out to raise leaf production including irrigation, pruning and training types, application of fertilizers, etc. (Koul and Bhagat, 1991; Singh and Koul, 1997; Pandit *et al.*, 1999). Ganga (2003) suggested that, over mature and yellow leaves with low protein content should be discarded to other nutritious feed to the worms. During present study nutritional constituents of young, mature and senescent leaves from three cultivars of mulberry (viz. M5, V1 and S36) studied has been compared. Hence, In order to have further insight in to the above problem, a fate of various nutritional constituents during leaf senescence in the three cultivars of mulberry (viz. M5 (K2), V1 and S36) has been studied in the present investigation.

MATERIAL AND METHOD-

The phosphorus content was estimated according to the method of Sekine *et al.*, (1965). Phosphorus reacts with 'Molybdate Vanadate Reagent' to give yellow coloured complex. By estimating calorimetrically the intensity of the colour developed and by comparing it with the colour intensity of the known standards, phosphorus content was estimated. Two ml of acid

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Development of novel solvent extraction method for determination of gold(III) using 4-heptylaminopyridine: Application to alloys and environmental analysis

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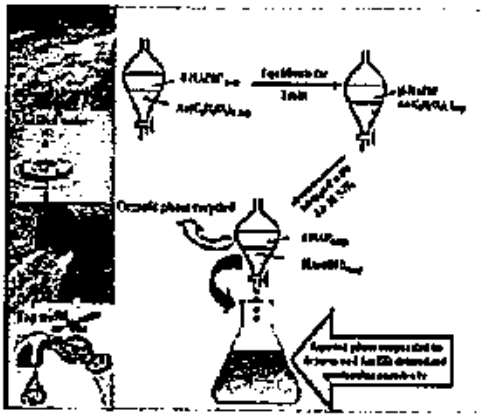
Highlights

- 4-heptylaminopyridine is a novel extractant for extraction and separation of gold(III) metal.
- Extraction of gold(III) has been carried out without any addition of synergent or modifier at room temperature.
- The developed conditions of separations have been successfully extended to recover gold(III) from binary and ternary metal ion mixtures, alloys and environmental samples.

Abstract

In this paper, the solvent extraction of gold(III) from malonate media (0.04 mol L^{-1}) has been studied by equilibrating aqueous phase having pH 2.5 with 10 mL of 0.07 mol L^{-1} 4-heptylaminopyridine (4-HAP) as a novel anion exchanger diluted in xylene for 2 min. The extracted metal from organic phase was separated by stripping with 5.0 mol L^{-1} NH_3 solution (2 × 10 mL). The effect of various parameters, such as pH, extractant concentration, weak acid concentration, equilibrium time, stripping agents, aqueous to organic volume ratio and diluents on the extraction of gold(III) was investigated. The extracted species has been evaluated from $\log_D$ vs $\log_C$ and species appears to be 1:2:1 (metal: acid: extractant). The selectivity of the method was checked by separating gold(III) from binary and ternary mixtures of associated metal ions as well as platinum group metals(PGMs). The separation of gold(III) from synthetic alloys and environmental samples was also carried out.

Graphical abstract



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Keywords

Environmental samples; Gold(III); 4-heptylaminopyridine; Solvent extraction

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09

क्रांतिसिंह नाना पाटलांचे सामाजिक क्षेत्रातील योगदान

प्रा. डॉ. विकास मोहन सरनाईक
श्रीमती मीनलबेन मेहता कॉलेज, पाचगणी.

आधुनिक काळात भारतमध्ये ब्रिटिशांच्या प्रभावातून सामाजिक सुधारणा सुरु झाल्या. वास्तविक पाहता भारतातीलच सुशिक्षित युवकांनी बदलेल्या राजकीय-आर्थिक-सांस्कृतिक परिस्थितीला दिलेली प्रतिक्रिया म्हणजेच समाज सुधारणा चळवळ होती. यामध्ये राजाराम मोहनराम यांच्यापासून ते महात्मा जोतिबा फुले व बाबासाहेब आंबेडकर यांच्यापर्यंत बरीच नावे उल्लेखित करावी लागतील. यातून समकालीन सामाजिक, धार्मिक व राजकीय स्तिथीत परिवर्तन घडवून आणण्याचा प्रयत्न केला गेला. यासाठी त्यांना सामाजिक व राजकीय विरोधाला सामोरे जावे लागले. पण त्यांची भीती बाळगली नाही. विविध वृत्तपत्र, पुस्तके व सुधारणा चळवळीच्या माध्यमातून संपूर्ण भारतभर खेडोपाडी पोहोचले. असाच एक समाज सुधारणेचा प्रयत्न सातारा जिल्ह्यात क्रांतिसिंह नाना पाटलांनी केला. त्यांनी महात्मा जोतिबा फुले यांच्या विचारांचा वारसा जपून सामाजिक सुधारणेचे काम हाती घेतले आणि स्वतःच्या कृतीतून ते प्रकट केले.एकूणच क्रांतिसिंह नाना पाटलांनी केलेल्या कार्याचा थोडक्यात आढावा प्रस्तुत शोध निबंधात घेण्याचा प्रयत्न केलेला आहे.

क्रांतिसिंह नानांचा पार्श्वभूमी

क्रांतिसिंह नाना पाटलांचा जन्म 3 ऑगस्ट 1900 रोजी येडे मच्छिंद्रपासून जवळच असलेल्यावोरगाव या ठिकाणी झाला.[1] त्यांचे मूळ आडनाव पिसाळ असे होते, मात्र त्यांच्या घराण्याकडे असलेल्या पाटीलकी या वतनामुळे त्यांनी 'पाटील' हे आडनाव रूढ झाले.[2] लहानपणापासूनच नाना हुशार,बोलके व हजरजबाबी होते. आपल्या सभोवतालच्या वारकरीक घटनाकडे त्यांचे चिकित्सक लक्ष होते. याच दरम्यान कोल्हापूर राज्यात छ. शाहू महाराजांनी सत्यशोधक चळवळीची सुरवात केली होती. या चळवळीच्या प्रचार व प्रसारासाठी सत्यशोधक जलसे सुरु केले. हे जलसे पाहूनच नानांनी सत्यशोधक चळवळीचा मार्ग धरला.[3]

टीका आपल्या ओजस्वी व गावरान भाषेतूनच केली. त्याची एक दोन उदाहरणे पाहू. – अकोलखोप येथील ग्रामदेवत 'म्हसोबा' याचे चांदीचे डोळे काढून नानांनी आपल्या खिशयात ठेवले, तरी म्हसोबाने काही केले नाही. जो आपल्या स्वताच्या डोळ्यांचे रक्षण करू शकत नाही, तो नवस न फेडू शकणाऱ्या भक्ताला कसा लागीर होणार? कॉलरच्या साथीमध्ये शेकडो लोक मृत्यू पावत होते हा एक दैवी कोप आहे असे समजून गावातील लोक 'मरीआईचा गाढा करून गावाच्या वेशीबाहेर सोडत, ही अंधश्रध्दा मोडीत काढून मरीआईचा गाढा नानांनी मोडीत काढला. तसेच माणूस गेल्यानंतर त्याच्या पिंडाला कावळा शिवणे आशा विविध अंधश्रध्दा बरोबरच ग्रामीण भागातील दारूबंदी, मतदान मंडळे, स्त्री स्वरक्षण,अस्पृश्यता निवारण इत्यादी विविध सामाजिक कार्यामध्ये क्रांतीशिंहाचा धान्याने सहभाग होता.[8] अशा प्रकारे सत्यशोधक चळवळीच्या प्रभावातून क्रांतिसिंहांनी सामाजिक क्षेत्रात मोठ्या प्रमाणात भरीव कार्य केले. मात्र कालांतराने सत्यशोधक चळवळीत चरिष्णु वर्गाचे वाढते प्रावल्ये व महात्मा फुले यांच्या सामाजिक समतेच्या विचारांचे असलेले नाते तुटत चालल्याचे क्रांतिसिंहांना जाणवले, त्यामुळे त्यानी सत्यशोधक चळवळीचा मार्ग बदलून बहुजनांच्या विकासासाठी सन 1930 नंतर भारतीय राष्ट्रीय कॉंग्रेसचा मार्ग स्विकारला[9] मात्र क्रांतिसिंहांची बंडखोर वृत्ती,ब्रह्मसत्यवादी वृत्तीस व धर्मिक कर्मकांडास विरोध यामुळे कॉंग्रेसमधील ब्राम्हण्यवादी कार्यकर्त्यांच्या विरोधालाही सनोरे जावे लागले.[10] आज समाजात अनेक अंधश्रद्धा प्रचलित आहेत. जागतिकीकरणाने घडून आलेल्या बदलाने जगण्यातील शाश्वती संपली आहे, अस्थिरता आली आहे. या अनिश्चिततच्या वातारणात लोक देवभोळे व धर्मभोळे बनत आहेत. त्यात मानसिक आधार शोधत आहेत. बाबा, बुवा, दादा, महाराज, माता, याचे स्तोम माजले आहे. अशा स्थितीत नानांच्या कार्याचे मोल अधोरेखित होते. महात्मा फुलेंचा अंधश्रद्धा निर्मूलनाचा वारसा नानांनी जपला, बहुजन समाजाला अंधश्रद्धाचे जोखड फेकून देण्यासाठीची शक्ती यावी यासाठी स्वत:च्या कृतीतून आदर्श उभा केला. देव नाकारला नाही. पण देवासोबत येणारे पुरोहिताचे शोषण करणारी व्यवस्था नाकारली. पुरोहिताच्या ताब्यातील बहुजन व त्यांचा धर्म सोडवण्याचा नानांनी केलेला प्रयत्न आजच्या समाजालाही उपयुक्त आहे.

निष्कर्ष :

नाना पाटील यांनी सामाजिक सुधारणा क्षेत्रातही राजकारणासारखे क्रांतिकारी कार्य केले त्यामुळे त्यांची 'क्रांतिसिंह' विरुदावली खऱ्या अर्थाने सार्थ ठरते. ब्रिटीश पद्धतीने नानांनी सामाजिक प्रथा, परंपरा याना पर्याय दिला. समाज व धर्म सुधारणेचा सत्यशोधक चळवळीचा वारसा जपला, ते केवळ बोलके सुधारक नव्हते, तर महात्मा फुले व छत्रपती शाहूमहाराजांसारखे स्वतःच्या कृतीतून सामाजिक सुधारणाचा आदर्श घालून देणारे होते. आज 21 व्या शतकातहीअंधश्रध्दा निर्मुलन करताना डॉ. नरेंद्र दाभोळकर सारख्यांना आपला जीव गमवावा लागतो, लग्नातील हुंड्यासाठी मुलींना तर लग्नातील कर्जासाठी वडिलांना आपला जीव गमावल्याची कित्येक उदाहरणे आज प्रत्यक्ष घडत आहेत. तसेच आज राजकारणामध्ये सर्रासपणे धर्म व जातीचा आधार घेतला जात आहे, जे प्रगल्भ लोकशाहीस धोकादायक आहे.11 एकूणच चरिल सर्व पार्श्वभूमीवर नाना पाटलांचे सामाजिक क्षेत्रातील योगदान हे आधुनिक महाराष्ट्राच्या उभारणीमध्ये बहुमोल व मार्गदर्शक स्वरूपाचे आहे,नानांचे कार्य चिरंतन आहे. दीपस्तंभासारखे आजच्या भरकटलेल्या बहुजन समाजाला मार्गदर्शक ठरणारे आहे. त्यामुळे ते काळाच्या मर्यादा ओलांडून आजच्या समाजाला उपयुक्त ठरते.

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क्रांतिसिंह नानांनी सत्यशोधक चळवळीच्या माध्यमातून केलेले सामाजिक कार्य :

राजर्षी शाहू महाराजांच्या प्रभावातून कोल्हापूरात सन 1910 पासून सत्यशोधक चळवळीचा प्रचार आणि प्रसार सुरु झाला. या विचारांचा प्रसार होण्यासाठी जलशांचा वापर केला गेला. कारण जलसे हे त्या काळात निरक्षर ग्रामीण समाजाला जागृत करण्याचे एकमेव साधन आहे असे विचार सत्यशोधी समाजच्या प्रचारकाना वाटला. (जलसे म्हणजे ग्रामीण समाजाला करमणुकीसाठी सुरु असलेला तमाशाला फड.) या मध्यमातुनच प्रचारकांनी खोडी-पाडी लोकजागृती केली. यामध्ये ब्राम्हणी वर्चस्वावरोवरच सावकारी पाश,बहुजन समाजाचे सामाजिक व धार्मिक शोषणावरोवरच या समाजातील व्यसनाधीनता, समाजातील आपसातील वाद, कोर्ट-कचेऱ्या,धार्मिक विधी व विवाह यावर होणारा खर्च इत्यादि विविधविषय होते. यात्न जलशाचे कार्य पाहून नाना त्याकडे आकृष्ट होऊन कार्यास सुरवात केली.

क्रांतिसिंहनानाचे शिक्षण प्रचार व प्रसाराचे कार्य

तत्कालीन काळातील बहुजन समाजात शिक्षणाविषयी प्रचंडकोटीची अनास्था होती. समाजामध्ये धर्माचे प्राबल्य होते. परिणामी बहुजन समाज शिक्षणापासून वंचित राहिला. त्या काळात असा समज होता की 'महारा घरी गाणं, कुणब्या घरी दाण आणि वामना घरी लिवन' त्यामुळे बहुजन समाजाला आपण शिकावे असे वाटत नव्हते. अशा समाजाला साक्षर वनविण्याचा ध्यास नानानी घेतला. गावातील प्रौढ तरुण जे कधी शाळेत गेलेच नाहीत त्यांच्यासाठी सर्वप्रथम रात्रीच्या शाळा सुरु केल्या. शिक्षणाचे महत्व समजाला कळावे यासाठी त्यांनी स्वताच्या घरापासूनच सुरवात केली. प्रथम आपल्या पत्नीला साक्षर केले, त्याच्या या प्रयत्नामुळे ग्रामीण समाजातील अनेक तरुण शिक्षक, कारकून व तलाटी या नोकरीला लागले परिणामी 'शिक्षण हा ज्ञानाचा तिसरा डोळा आहे' याची प्रचिती होऊ लागली. बहुजन समाजाच्या गुलामीचे मूळ शिक्षणात आहे. हे सर्वप्रथम महात्मा फुलेनी ओळखले. त्यातून त्यांनी शूद्रातिशूद्र व स्त्रियांना शिक्षण द्यायला सुरुवात केली. त्याचाच वारसा जपत नाना पाटलानी बहुजन समाजाला शिक्षण देण्याचे काम केले. शिक्षण हे समाजाला सक्षम वनवण्याचे व मानसिक गुलामीतून मुक्त करण्याचे साधन आहे. हे नानाच्या कार्यातून दिसून येते.

गांधी विवाह प्रथा

'विवाह' हा एक संस्कार म्हणून हिंदू समाजात मानल्यामुळे आपोआपच यामध्ये वधू-वरावरोवरच ब्राहमण पुरोहितही येतातच. यामुळे विवाह हा धार्मिक सोहळा होऊन अतोनात खर्च होतो. प्रसंगी कर्ज काढावी लागतात. अशा प्रकारच्या विवाहाला विरोध करून कोणताही धार्मिक विधी-कर्मकांड न करता सत्यशोधक पद्धतीने विवाहाची प्रथा नानानी रूढ केली, यासाठी त्यांनी ही प्रथा स्वताच्या घरातून सुरु केली, त्यांनी सन 1922 मध्ये स्वतःचा विवाह सत्यशोधक पद्धतीने केला. याचरोवर आपल्या वहिणीचा (गंगुवाई) विवाह नाथाजी लाड यांच्याशी व मुलगीचे लग्न हणमंत वडीये याच्याशी सत्यशोधक पद्धतीने लावले. या साध्या व विनाखर्चिक विवाहाचा प्रसार मोठ्या प्रमाणात झाला. याच लग्नाला त्यांनी 'गांधी लग्न' असे नाव दिले6या वरोवरच पुनर्विवाह आणि आंतर्जातिय विवाहासाठी मोठ्याप्रमाणात प्रयत्न केले, यातूनच सन 1948 मध्ये त्यांनी कुंडल येथे एका विधवेचा विवाह आपल्या क्रांतीकारकाशी लाकून दिला. तसेच नानानी विवाहातील होणारा खर्च वाचवा म्हणून सामुहिक विवाह प्रथा सुरु केली, जी आज 21 साव्या शतकात दिसून येते, त्यांनी त्यंच्या काळात 20-20/25-25 विवाह एकच मांडवात पार पडल्याचा इतिहास आहे.7 सद्यस्थिती विवाह हा कार्यक्रम अत्यंत खर्चिक वनला आहे. लग्नासाठीचा खर्च अत्यंत अनुत्पादक असतो, बहुजन समाजातील जनता आजही खोट्या प्रतिष्ठेपायी लग्नसमारंभवर भरमसाठ खर्च करताना दिसतात. एकवेळ मुलांच्या शिक्षण, सकस अन्न, ग्रंथ, आरोग्य, इ. बहुजन समाज काटकसर करतो. पण विवाहासाठी कर्ज काढून खर्च करतो. या कर्जापोटी स्वताची संपत्ती गहनवट ठेवतो व हे कर्ज वेळेत फेडता न आल्याने स्वताचे कुटुंब संपवून टाकतो अथवा स्वत: आत्महत्या करतो, अशा वातावरणात नानानी सुरु केलेल्या गांधी विवाहांचे महत्व आज लक्षात येते. आजच्या समाजाला कमी खर्चात लग्न, सामुदायिक लग्न, विधवा पुनर्विवाह,(आजही उच्च समजल्या जाणाय वर्ण/कुळामध्ये मुलीचा पुनर्विवाह केला जात नाही.) आंतरजातीय विवाह(आज 21व्या शतकातही आंतरजातीय विवाह केल्यास त्या जोडप्यांना समाजवहीस्कृत केले जाते किंवा संपवले जाते. जे सैराट सारख्या मराठी चित्रपटातून दाखवले आहे.) अशा विवाहांची गरज आहे. त्यामुळे नानाचे कार्य आजच्या 21 व्या शतकातील समाजापुढे आदर्श ठभा करते.

अंधश्रध्दा निर्मूलनाचे कार्य

नाना म्हणत की, "शेकडो हजारो वर्षाचे संस्कार आणि जुन्या कोत्या समजुती नाहीशा करण्यासाठी समाजसुधारकांच्या शेकडो पिढ्या खर्ची पडल्या तरी पूर्ण यश मिळणे अवघडच, तरीही प्रयत्न करीत राहणे येवढेच आपल्या हातात आहे". म्हणूनच त्यांनी सातत्याने समाजातील वाईट चाली रिती,रुढी,परंपरा याचावर वोचरी व वास्तवयादी

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ORIGINAL PAPER

Facile synthesis of CuO nanosheets as electrode for supercapacitor with long cyclic stability in novel methyl imidazole-based ionic liquid electrolyte

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Abstract Hierarchical CuO nanosheets were synthesized through a facile, eco-friendly reflux deposition approach for supercapacitor electrode material for energy storage. The resultant CuO nanosheets were characterized by Fourier transform infrared (FTIR) spectroscopy, X-ray diffraction (XRD), scanning electron microscopy (SEM), X-ray photoelectron spectroscopy (XPS), and nitrogen adsorption-desorption isotherm techniques. The supercapacitor behavior of CuO nanosheets was investigated by cyclic voltammetry, galvanostatic charge/discharge, and electrochemical impedance spectroscopy in novel 0.1 M aqueous 1-(1'-methyl-2'-oxo-propyl)-3-dimethylimidazolium chloride [MOPMIM][Cl] ionic liquid as an electrolyte. The result demonstrate that CuO nanosheets exhibit specific capacitance of 180 F g^{-1} at 10 mV s^{-1} scan rate which is the highest value in ionic liquid electrolyte and 87% specific capacitance retention after 5000th cycle. The electrochemical performance proves CuO nanosheets as electrode with ionic liquid electrolyte for developing green chemistry approach in supercapacitor.

Keywords CuO · Thin film · Supercapacitor · Ionic liquid

Introduction

Supercapacitors (SCs) also known as electrochemical capacitor [1, 2] are electrochemical energy storage device and act as intermediate between conventional dielectric capacitors and batteries. In recent years, SCs are attracted significantly due to their attractive properties such as high power density, excellent reversibility, and long cycle life for electronic devices and power systems [3, 4]. According to charge storage mechanism, SCs are categorized as electric double-layer capacitors (EDLCs), in which capacitance arises from the charge accumulation at the electrode/electrolyte interface and pseudocapacitor, where capacitance arises due to fast reversible Faradic reactions of electroactive material [5, 6]. Generally, three types of electrode materials have been used as a building block to construct electrode namely carbon materials, conducting polymers, and transition metal oxide. Each of these has its own advantages as well as disadvantages. Carbon materials have been widely utilized for EDLCs due to their good processing ability, large surface area, porosity, good cycle life, and low cost [7–9] but limit to low charge storage. Conducting polymers are inexpensive and flexible but have poor cyclability [10–12]. Transition metal oxides are considered as ideal electrode materials for pseudocapacitor as they provide variable oxidation states for redox reaction and high specific capacitance but poor electronic conductivity and low cost [12–15].

Transition metal oxides (TMOs), hydroxides, and their binary compounds have been built for high-performance pseudocapacitor. The TMOs such as NiO [16, 17], Co_3O_4 [18], CuO [19], Fe_2O_3 [20], MnO_2, and V_2O_5 [21] have been extensively investigated in SCs due to their favorable capacitive characteristics and environmental friendliness. Among these, copper oxide (CuO) forms two well-known oxides namely tenorite (CuO) and cuprite (Cu_2O). Both the tenorite and cuprite are p-type semiconductors having band gap energy of 1.21 to 1.51 eV and 2.10 to 2.60 eV, antiferromagnetic material [22] and explored for electrode material for SCs due to their low cost, chemical stability, abundant resources, environmental compatibility, and pseudocapacitive characteristics.

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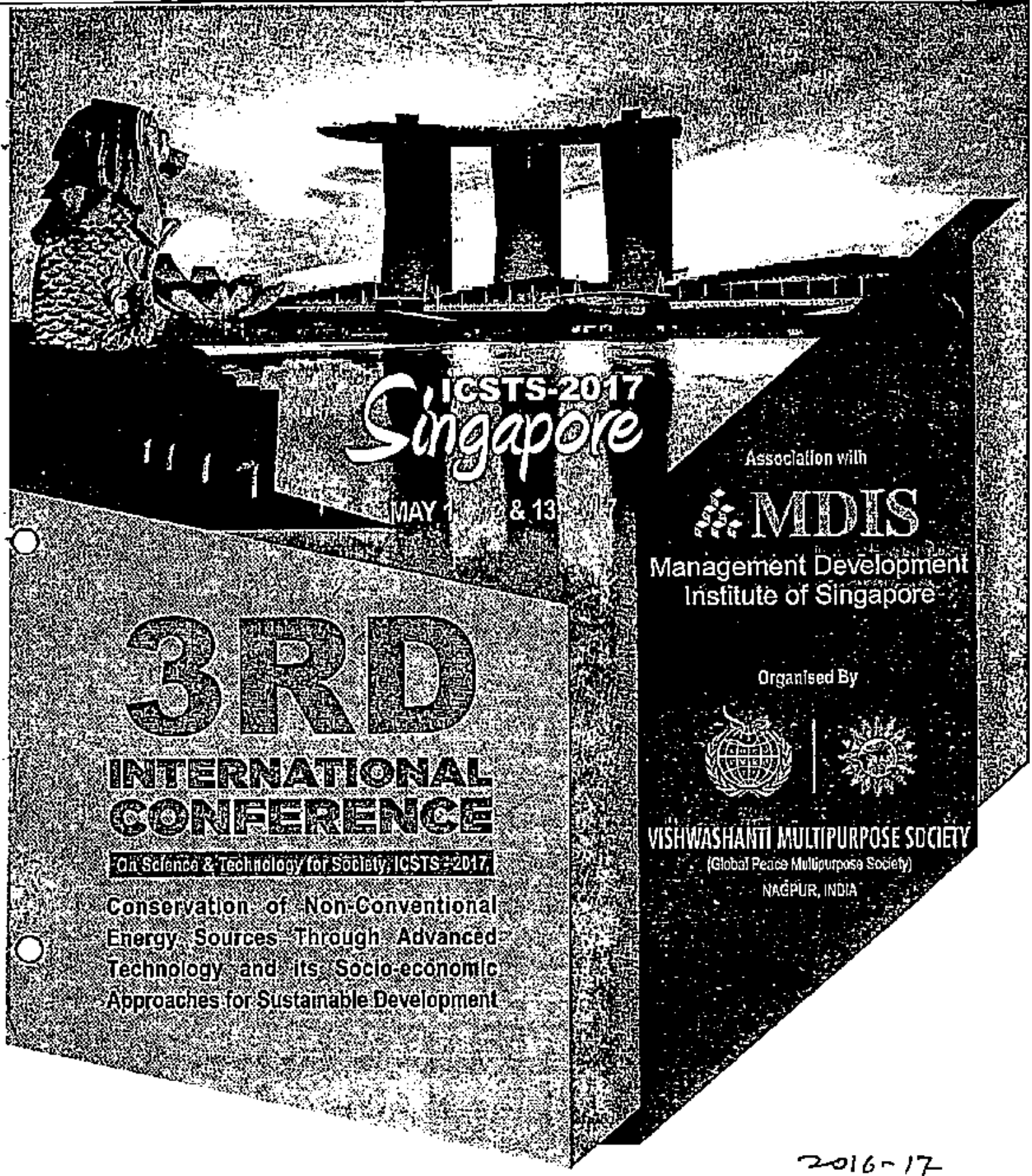

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Cyanobacterial Diversity from Some High Altitude Regions around Satara District (Maharashtra)

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ABSTRACT:

Aim of the present study was to assess biodiversity of cyanobacteria from high altitude regions around Satara district. In present investigation 31 Cyanobacterial species belonging to 13 genera viz., *Chroococcus, Gloeocapsa, Synechococcus, Myxosarcina, Lyngbya , Plectonema , Nostoc , Anabaena, Scytonema , Scytonematopsis , Tolypothrix , Trichodesmium, Oscillatoria* from 3 orders viz., Chroococcales, Pleurocapsales and Nostocales have been described. Genus *Oscillatoria* was found to be common amongst other species and was represented by 9 species.

Keywords: Biodiversity, Cyanobacteria, Genus, *Oscillatoria*, Satara

INTRODUCTION:

Cyanobacteria represents morphologically distinct group of Oxygenic Photosynthetic organisms with Gram negative prokaryotic cell organization. Their cell lacks well defined nucleus and the DNA floats in the protoplast. Cyanobacteria exist in all known habitats ranging from peaks of mountains to bottom of oceans. They can thrive in extreme levels of humidity, light, salinity, temperature, availability of oxygen and solar radiation.

Critical search of literature reveals that vast amount of work has been done on the taxonomy of the cyanobacteria from different regions of Maharashtra (Ashtekar and Kamat 1980; Barhate and Tarar 1983a; Bhoge and Ragothman 1986; Kamat 1962,1963,1964,1968; Mahajan and Mahajan 1988b,1989; Sardeshpande and Goyal 1981). However scanty information is available regarding the cyanobacteria especially from high altitude regions around Satara district.

MATERIALS AND METHODS:

Satara district lies between 17° 50' and 18° 11'North latitude and 73° 31' and 74° 75' East longitude along the Sahyadri ranges in Maharashtra state. Sample collections were made from different habitats at high altitude region of Satara districts viz., Ajinkyatara Fort, Kas plateau, Thoseghar, Sajjangad fort (Parali) and Yawateshwar . Samples were examined under microscope and identified with the help of standard literature (Desikachary 1959 and Rippka 1979).

Sr. No.	Locality	Distance from Satara city	Co-ordinates		Height MSL
			Latitude	Longitude	
1.	Ajinkyatara Fort	5 km	17°40'17"N	73°59'44"E	3300 ft.
2.	Kas plateau	28 km	17°42'20"N	73°49'40"E	3725 ft
3.	Thoseghar	17 km	17°64'20"N	73°86'51"E	3980 ft
4.	Sajjangad fort (Parali)	15 km	17°39'16"N	73°54'33"E	3350 ft
5.	Yawateshwar	9 km	17°41'26"N	73°57'8"E	3100 ft

Table-1. List of the sampling sites from high altitude region of Satara districts

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TOURISM POTENTIAL OF WESTERN GHATS OF MAHARASHTRA AND ITS EFFECT ON BIODIVERSITY

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Introduction-

Western ghats of India are one of the hot spots of the world regarding its biodiversity. It ranges from Gujarat to Kanyakumari upto 1600 kms and approximately covers the area of 1,60,000 sq.kms. It has spread as parallel line to the Arabian sea and occupied the states like Goa, Karnataka, Tamilnadu and Kerala. It is located in between 720056'24"E to 780019'40" E and 80019'8"N to 210016'24"N. The highest point is Annamudi with a height of 2695 meters.

The biodiversity of this region is enriched with-

Flowering plants - 45000 (Endemic - 1720)
Trees – 490 (Endemic - 308)
Orchids – 245 (Endemic - 112)
Invertebrates – 315
Mammals – 23
Birds – 89
Reptiles – 87
Amphibians – 117
Fish – 104

The Western Ghats of Maharashtra are spread all along 650 kms.and spread across 7,75,000hectares. The average rainfall is 2000 to 6850 mm and temperature ranges from 140 to 370 Fº. The highest point is Kalasubai of 1646 meters.

The biodiversity of Western Ghats of Maharashtra is enclosed in various forms as Sacred Groves, National Parks, Rivers, Dams, Plateaus, Hills, Forts, Valleys and Forests.

a. **National parks**
b. **Sacred groves**
c. **Rivers**
d. **Dams**
e. **Forts**
f. **Minoral deposits**
a. **National parks in Maharashtra**

Sr. No.	Name of the park/ Sanctury	District	Year of Establishment	Area sq.meters.
1	Chandoli	Sangli ,Kolhapur satara	2004	317.67
2	Sanjay Gandhi	Borivali	1983	86.96
3	Radhanagari	Kolhapur	1958	351.13
4	Bhima Shankar	Pune, Thane, Raigad	1985	130.78
5	Tansa	Thane	1970	304.81
6	Tungareshwar	Thane	2003	4.48
7	Karnala	Raigad	1968	60.62
8	Phansad	Raigad	1986	69.79
9	Deoulgaon	Ahamadnagar	1980	2.17
10	Koyana	Satara	1985	423.55
11	Malwan	Sindhudurg	1987	29.13

b. Sacred groves

Sacred groves are the protected forests due to religious regions. Maharashtra has a rich sacred groves with lot of diversity in it. In Maharashtra there are 2820 sacred groves covering 5255.17 hectare area. In Kolhapur district there are 133 sacred groves covering 264.11 hectare area, inSangli district there are 13 sacred groves covering 136.7 hectare area and in satara district there are 23 sacred groves covering 24.96 hectare area. About 790 plant species and 352 plant varieties are recorded from these sacred groves.

c. Rivers

Maharashtra has the wide network of rivers originating from Sahyadris and Satpudahills.These rivers are Vasana, Dhom, Kanher, Mand, Urmodi, Tarali, Kera, Koyna, Vang, Yevati, Morana, Warana, Kadavi, Kasari, Kumbhi, Dhamni, Tulshi, Bhogavati, Doodhganga, Tilari, Chitri and Chikotra.

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Seasonal variations in the Biochemical content of Fresh water Fish Mystus malabaricus (Jordan)

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ABSTRACT
Freshwater fish Mystus malabricus (Jordan) collected from Krishna River near Audumber. The seasonal variations in the biochemical contents of muscles were analyzed. Protein level in the muscles does not shows any drastic change but its higher values are observed in the month April (20.4613 ± 0.0286) and lowest value (15.43222 ± 0.05779) in the month of November. Glycogen level decreases from January to October, again it increases from the month of November onwards. Its highest value was found in the month of December (0.46929± 5.2275-3) and lowest value was observed in the month of September (0.07318 ± 3.5619-3). Ascorbic acid content in the muscles is increases from January to June (0.07254 ± 4.6256-3 to 0.4622 ± 7.4283-3). Again the same increase was observed from the month July to December (0.15158± 5.45495-3 to 0.4469 ± 6.6271-3). It suggests that during preparatory period its value increases and reaches peak during breeding season. Lipid level decreases drastically during pre-spawning period (Feb- July) and post-spawning period (October- December). Its highest level is found in the months January (0.1320 ± 2.945-3) , August (0.15864 ±3.2416-3) and September (0.2468 ± 4.5477-3). During pre-spawning lipid content is transferred to gonads for the process oogenesis and spermatogenesis. Decreased level is also due to meet the energy demand
KEY WORDS: Mystus malabricus, Seasonal variations and Biochemical Contents

INTRODUCTION

Fish is an important source of food for mankind all over the world from the times immemorial. The importance of fish as source of high quality, balanced and easily digestible protein, vitamins and unsaturated fatty acids is well understood now. Fishes are valuable sources of high grade protein and other organic products. They are most important source of animal protein and have been widely accepted as a good source of protein and other elements for the maintenance of healthy body (Andrew, 2001). The consumption of fish and fish products is recommended as a means of preventing cardiovascular and other diseases and greatly increased over recent decades in many European countries (Cahu et. al., 2004). Besides, this fishes are good source which possess immense antimicrobial peptide in defending against dreadful human pathogens (Ravichandran et. al., 2011). Fish also plays important role in the prevention and management of many human diseases such as heart disorders, neurological diseases, mood swings and when fish is substituted for beef, the nitrogen is utilized better resulting in a decreased excretion of uric acid in the urine (Thilsted and Roos, 1999 and Conquer and Holub, 2002). They have important role in nutrition, income, employment and foreign exchange earning of the country. Medium and small indigenous fish species are valuable source of macro and micronutrients and play an important role to provide essential nutrients to the people.

Fish protein produces a good influence on the assimilation of magnesium, phosphorous and iron. Fat in aquatic organisms are associated with a variety of function reflecting special biochemical and environmental conditions, fats are the major metabolic reserve in most fish (Lovell,1989).

Glycogen is a vital source of muscle energy of live animal and it is utilized during muscular action and stored up during rest. Glycogen in different tissues shows remarkable difference Nutritive value of fish is recognized all over the world. The lipids are the most important biochemical compounds of fish (Akpinar, 1986). Fish store the lipids in various organs; particularly in muscles and liver. On the contrary, the mammals store in adipose tissue. A great amount of these lipids are transferred to the different parts of the body to be used for various physiological actions (Yilmaz, 1995). Generally fish lipids are known to contain n-3 series unsaturated fatty acids which reduce the level of serum triglyceride and cholesterol. As a result of this sudden heart attacks ratio and the risk of thrombosis, which is mainly the reason for heart attacks are reduced. Some researchers reported that the n-3 fatty acids facilitate some cancer treatments such as breast tumours (Konar *et al.*, 1999). In addition to the clear benefits of fish lipids in treatments, it is observed that due to lack of these essential fatty acids causes some symptoms to appear, such as slow growth, deformation of tail fin, faded and fatty liver.

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ANIMAL DIVERSITY FROM SACRED GROVES FROM ARID REGION OF SANGLI DISTRICT (MAHARASHTRA), INDIA

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ABSTRACT

The Sacred grows are rich in biodiversity and harbor many rare species of plants and animals. In India they are scattered all over the country. There sacred groves were maintained by local communities. During the present investigation animal diversity from groves from arid region of Sangli was studied. During the study reptiles Aves Mammals were recorded from Arewadi, Banali, Dandoba, Raywadi, Sagareshwar and Shukaracharya Sacred groves.

KEY WORDS: Animal Diversity, Sacred Groves and Arid region.

INTRODUCTION

Sacred groves were a feature of the mythological landscape and the cultural practice of old Europe, of the most ancient levels of Scandinavian mythology, Greek mythology Slavic mythology, Roman mythology and in Druidic practice. Sacred groves also feature prominently in many Asian and African mythologies and cultures, most notably in India, Japan, West Africa and Anatolia. In India, sacred groves are scattered all over the country and do not have any federal legislation. Each sacred grove is associated with presiding deity and the groves are referred to by different names in different parts of India. They were maintained by local communities with hunting and logging strictly prohibited within these patches. The sacred groves are mainly associated with local Hindu gods, but sacred groves of Islamic and Buddhist origins are also known. Sacred groves occur in variety of places like scrub forests in the Thar desert of Rajasthan to tropical rain forest of Kerala, Western Ghats.

It can be also stated as, sacred grove is a small or large, isolated area that has escaped the extreme changes undergone by the surrounding area, as during a period of glaciations, allowing the survival of plants and animals from an earlier period. Each sacred grove has got its own flora and fauna as well as an associated deity. There are about 14,000 sacred groves have been reported from all over India, which acts as reservoirs of rare fauna and more often rare flora, rural and even urban setting. They have received threats due to urbanization, over exploitation of the natural resources and environmental destruction from Hindu religious practices (Malhotra *et.al*, 2001, Ramchandra 2000). Sacred groves are traditionally protected small patches of vegetation types and managed by local communities through a wide range of management practices are biological heritage. They are dedicated to local deities or ancestral spirit is protected through social traditions by local people and taboos that incorporate spiritual and ecological values.

These sacred groves are preserved over course of many generations; represent native vegetation in a natural or near natural state. These groves are rich in biodiversity and harbor many rare species of the plants and animals. There is a vast diversity among Indian sacred groves. These groves vary considerable in size from few acres to hundred acres. In many sacred groves, villagers perform annual ritual and ceremonies to appease the presiding deity and to ensure the well beginning of their community.

The sacred groves are our biological heritage (Gadgil and Vartak, 1975). Many traditional societies all over the world, value a large number of plant species from the wild for a variety of purposes food, fiber, shelter or medicines (Ramkrishnan, 1998). Due to absence of human interference these sacred forest supports the climax vegetation, commensurate to their particular locality. This climax vegetation is rich in the species of trees, climbers, epiphytes, heterotrophs and decomposers

MATERIALS AND METHODS

The scared groves from arid region of Sangli District were visited regularly from May 2010 to April 2012. The observations on reptiles, aves and mammals were recorded. The birds were indentified as per standard reference books by Ripley (1982), Salim Ali and Ripley (1983 a,b), Gole (1988) and Salim Ali (1996). The reptiles were

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Analytical Methods

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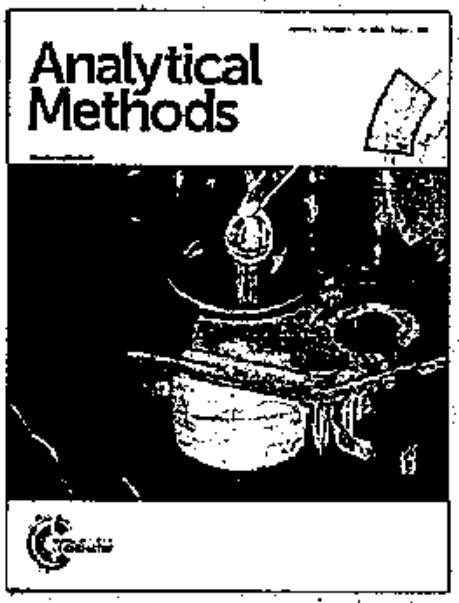

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Analytical Methods

Development of a solvent extraction system with 4-heptylaminopyridine for the selective separation of platinum(IV) from catalysts, anticancer injections and water samples

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Abstract

In this paper, the solvent extraction of platinum(IV) from ascorbate media (0.007 M) has been studied by equilibrating the aqueous phase (pH 1.5) with 10 mL of 0.06 M 4-heptylaminopyridine (4-HAP), as a novel anion exchanger, diluted in xylene for 2 min. The extracted metal was separated from the organic phase *via* stripping with water solution (2 × 10 mL). The effect of various parameters, such as pH, extractant concentration, weak acid concentration, equilibrium time, stripping agent, aqueous to organic volume ratio and diluent, on the extraction of platinum(IV) was investigated. The extracted species were evaluated *via* log *D* *vs.* log *C* and the species appeared to be in a ratio of 1 : 3 : 1 (metal : acid : extractant). The selectivity of the method was checked by separating platinum(IV) from binary

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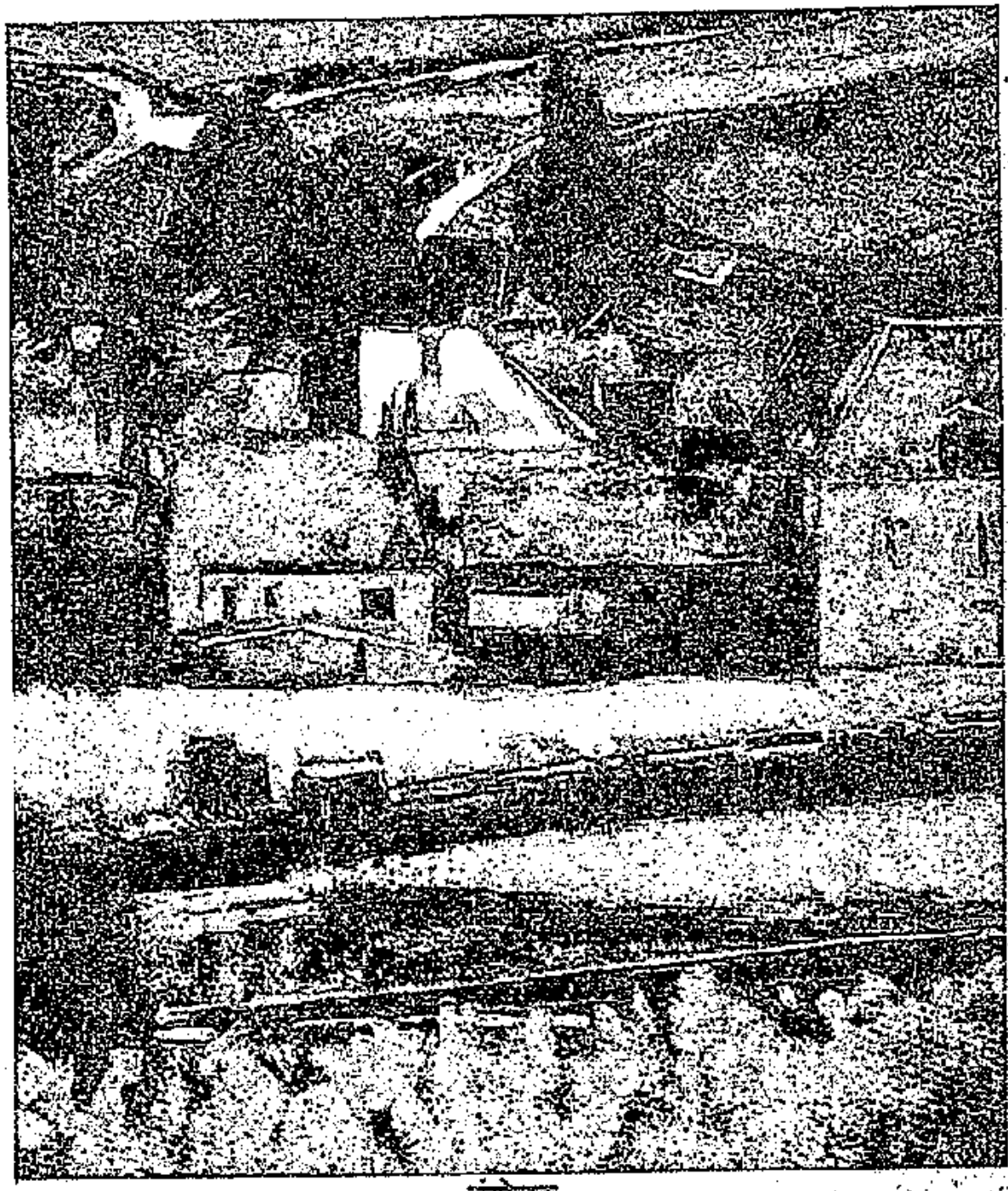
शिविम संशोधन पत्रिका अधिवेशन विशेषांक

१९९० नंतरच्या मराठी साहित्यातील प्रयोगशीलता

वर्ष-चौथे व पाचवे : अंक आठवा-नववा । ऑक्टोबर, २०१६ ते मार्च २०१७



संयोजक
श्री स्वामी विवेकानंद शिक्षण संस्था, कोल्हापूर संचलित
लाल बहादूर शास्त्री कॉलेज
ऑफ आर्ट्स, सायन्स ॲण्ड कॉमर्स, सातारा

मराठी समीक्षेतील प्रयोगशीलता

'देशीवाद' अथवा 'देशीयता'

डॉ. अशोक सदाशिव तवर

मराठी विभाग, मीनलबेन महेता कॉलेज, पांचगणी जि. सातारा

प्रस्तावना –

१९९० नंतर जागतिकीकरणाची प्रक्रीया सुरू झाली. या प्रक्रीयेच्या परिणामातून जवळजवळ सर्वच क्षेत्रात बदल जाणवू लागला. त्या बदलाच्या मध्यवर्ती मानून हे मूल्य ठरवले गेलेले दिसत असले तरी त्याला यंत्रवत अवस्था आलेली दिसून येते. याला मराठी समीक्षा क्षेत्रही अपवाद ठरले नाही. १९९० नंतरच्या समीक्षेविषयी आपण विचार करत असलो, तरी मराठी समीक्षेतील प्रयोगशीलता १९८० च्या दशकातच प्रारंभ झाल्याचे दिसून येते. या प्रयोगशीलतेचा नवा आविष्कार म्हणजे 'देशीवाद' किंवा 'देशीयता' असा सांगता येईल. त्याचा विचार १९९० नंतरच्या समीक्षेतील प्रयोगशीलता म्हणून आपण येथे विचार करणार आहोत.

'देशीयता' किंवा 'देशीवाद'–

'देशीयता' ही संज्ञा मराठीत प्रथम भालचंद्र नेमाडे यांनी १९८० मध्ये वापरले. शिवाजी विद्यापीठ, कोल्हापूर येथे झालेल्या "१९५० ते १९७५ या कालावधीतील मराठी साहित्य प्रेरणा व स्वरूप' या परिसंवादात भालचंद्र नेमाडे यांनी वाचलेल्या 'मराठी कादंबरीतील देशीयता' हा निबंध म्हणजे देशीयता किंवा देशीवादाच्या चर्चेची सुरुवात म्हणता येईल.

यापूर्वीच्या काळात मराठी समीक्षेच्या क्षेत्रात वा.सी. मर्ढेकर यांचा दबदबा होता. १९३७ मध्ये मर्ढेकरांनी 'Arts & Man' हे पुस्तक इंग्लंडमध्ये प्रकाशित केले. त्यामुळे मर्ढेकरांचे मराठी समीक्षेवरील दडपण आणखी वाढल्याचे दिसून येते. त्यांनी सांगितलेल्या सौंदर्यवादाची चर्चा मराठीत खूप वेळा झाला. परंतु साहित्यातील सौंदर्यवाद किती लोकांना समजला? हा प्रश्न येतोच. मर्ढेकरांच्या सौंदर्यवादाचा दबदबा मराठी समीक्षा क्षेत्रात १९८० पर्यंत होता. या दबदब्याला विरोध करण्याचे धाडस तोपर्यंत कोणी दाखविले नाही. त्यामुळे भारतीय समीक्षा ही इंग्रजांच्या प्रभावातून निर्माण झाली असल्याचा समज निर्माण होऊन तिच्यावर वसाहतवादाचा

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POTENTIAL OF ECOTOURISM IN KOLHAPUR DISTRICT: A SPECIAL REFERENCE TO DAJIPUR SANCTUARY"

Dr. Vikas Mohan Sarnaik
Asst. Professor, Dept. of History, Smt. Meenalben Mehta College, Panchgani, Dist. Satara

Introduction:

Kolhapur district is an important historical and tourist place on the national map. The land of Kolhapur has been purified by Goddess Ambabai, the bravery of Chhatrapati Shivaji and forward thinking of Rajarshi Shahu and of uniqueness at the national level. Kolhapur is a progressive district almost in all the walks of life like religious, political, social, industrial, natural, educational and tourism etc. There are a lot of tourist attractions in and around the district of Kolhapur. One can find excavated remains dating back to 2nd BC to ancient relics of the Buddha, Mahavir era. There are old caves, temples from the era of Shativan, Satavahan, Bhoj and Yadavas to the Maratha Dynasty. We can find forts, temples, stone inscriptions, statues and other relics and signs of the long lost heritage here. Similarly the district of Kolhapur is enriched with a rich biodiversity making it one of the 35 Biodiversity Hotspots in the world. The region falling in Western Ghats is interspersed with evergreen forests, river origins, dams, wildlife sanctuaries and national forests. As a result one is able to see a variety of faths, peaks, valleys, rivers and huge trees along with all types of biodiversity.

Kolhapur is nationally and internationally well known for its ancient temples, religious importance and sacredness. It is also known as Dakshin Kashi (South Kashi) and it is one of the three important holy places (Bhakutpeeth). Tirupati Balaji is the richest temple in South India with a huge tourist inflow. Most of the tourists visit Goddess Ambabai in Kolhapur after their visit to the Tirupati temple. Similarly the very high number of tourists visit temples at Jotiba, Nrusinhawadi, Vashi, Adampur and 23 more such places.

Tourists from Goa, Karnataka, Andhra and also tourists from other parts of Maharashtra visit Kolhapur in large numbers. Transport is available through air, railways, state transport and other buses. The cities Mumbai, Delhi, Gondia, Nagpur, Hyderabad, Tirupati, Bangalore are well connected by rail. People from other parts can make use of these stations for their travel to Kolhapur.

Historical places have a special importance as heritage sites. These sites are an evidence of social status, changes, social make up of those times. They are also means of research today. Hence it is essential to conserve them for their future studies and these places can become a major part of the tourist attractions.

In today's busy, fast and stressful life the need to get away from it has become an essential part of life. As a result the number of people opting out for travelling to far away tourist destinations is on the rise. People have a varied purpose during their trips like visiting religious places, historical monuments, sightseeing on new locations, entertainment, etc. Thus tourism has become an important industry, contributing to income source for the local population and adding to the per capita income and GDP in general.

Tourism has become one of the major sectors in international commerce, and represents, at the same time, one of the main income sources for many developing countries. Today, the sector contributes to 9% of the world GDP – through direct, indirect and induced impact and accounts for USD 1.6 trillion of world exports are 6% of the world exports. Tourism has become the world's most important civil industry, representing annually a US $3.5 trillion activity. The travel and tourism industry employs 127 million workers (1 in 15 workers worldwide).[1]

Concept of Tourism:

"Tourism is traveling to natural areas untouched and uncontaminated by human factor, with the specific purpose of studying, admiring and enjoying the scenery, wild animals and plants in it, as well as any cultural events (past and present) found in these areas." (Jafar) Jr. 2000)[2]

In this research article "Eco-tourism in Dajipur Sanctuary" has been highlighted. Firstly, ecotourism concept is defined by 'The Ecotourism Society Board of Directors' in 1991 as: "Responsible travel to natural and cultural areas that conserves the environment and sustains the well-being of local people." (Lindberg and Mckercher)

The National Ecotourism Strategy of Australia- "Ecotourism is a type of nature-based tourism that involves education and interpretation of the natural environment(including cultural component) and takes place in order to be sustainable and environmentally" (with direct reference to the local community and long-term conservation). (Allcock et all, 1994) [3]

Study Area:

The study area of research paper is Dajipur Sanctuary in Kolhapur District which is declared as Tourist Hotspot by UNESCO. Researcher tries to find out potential for ecotourism in study area. Location of study area: The Dajipur Sanctuary is located between 16°10 to 16°30 North latitude and 73°52 to 74°14 East longitude. Dajipur is a very small place in Kolhapur District of Maharashtra. Dajipur is about 40 km from Radhanagari and 80 km from Kolhapur. It lies at the end of the Sahyadri Mountain Ranges, where the southern end mingles into the flatlands of Karnataka while the Konkan coastal area lies on the West. Marathi is the main language spoken in Dajipur. The average rainfall of this area is 685c.m., at the height of 1200 meters above the sea level. The Krishna River tributaries, Bhogavati River, Dudhganga River, Tulshi River, Kaliamma River and Dirba River flow through the sanctuary area. [4]

State Highway No. 116 passes through the center of the sanctuary. It is located in Sahyadri Ranges. This Wildlife Sanctuary contains tropical evergreen forests typical of the northern Western Ghats. As a biodiversity concerned, 425 species of plants have been recorded in the Sanctuary. The main species found over here are Anjani, Jambul, Hirda, Awala, Pisa, Ain, Kinjal, Amba, Kumbha, Bhonia, Chandala, Katak, Nana, Umbar, Jambha, Gela, Bibba and banana. Karvi is found over almost the entire area. [5]

In 1952 Government of India declared National Forest Policy and in 1959 Dajipur was declared as a sanctuary to preserve the wildlife which was on the way of extinction. At that time it was the only sanctuary in Bombay Presidency. The physical area of this sanctuary was 231 sq. k.m. and it was extended up to 351.4 sq. k.m. in 1985. [6]

Ecotourism Potential:

The ecotourism potential of a locality or region is indispensable to work out a systematic inventory of its ecotourism attractions.

Ecotourism Activities:

These are some of the most important ecotourism activities:

Bird Watching (Birding): Birds seen here include: vultures, eagles, jungle fowl, quails, plovers, sandpipers, owlets, doves, owls, nightjars, kingfishers, bee-eater, hornbills, woodpeckers, bulbul, flycatchers, warblers, wagtails, sunbirds adult male Malabar grey hornbill etc. are commonly seen.

This sanctuary is designated as an Important Bird Area by BirdLife International and is home to the rare and globally threatened Nilgiri wood-pigeon (Columba elphinstonii). Other species found here include the Ceylon frogmouth, yellow-browed bulbul, dusky eagle-owl and great pied hornbill and one of India's most admired songbirds, the Malabar whistling thrush. Two species endemic to the Western Ghats; the small sunbird and the Malabar grey hornbill have been sighted here. This sanctuary is a favorite nesting place for the speckled piculet, Malabar crested lark, and some species of Himalayan birds such as the Indian blue robin during the winter months. [7]

Wildlife Animals: Sanctuary contains 47 species of mammals, 59 species of reptiles, 264 species of birds and 66 species of butterflies. Amphibians are most visible in the rainy season. 20 species from 2 orders, 5 families and 10 generations are listed in the sanctuary. In 2004 Tiger(3) On 9th September 1972, 44th Wildlife Act was passed in Parliament of India under the leadership of Indira Gandhi and Vyaghra Prakalp was started in India. [8] Indian leopards (22), Indian bison or gaur (Bosgaurus) with a population around 610 in 2004, is

he flagship species of the area. Other mammals living in the sanctuary are Indian leopard (5), sloth bear, wild boar (80), barking deer (140), mouse deer (80), sambar (120), giant squirrel 50) and wild dogs (70). In recent years, 6 to 12 tigers were reported in Dajipur forest during 2007-08. Besides, a number of birds and animals including antelopes, wild boar, bears, serpents, monkeys and smaller mammals are found here. This sanctuary also protects many other animals like leopard, sloth bear, barking deer, mouse deer, sambar, giant squirrel, wild dogs. The sanctuary is famous for Indian bison, which is locally known as Gava(buffalo). Threatened species of reptiles and amphibians seen in this sanctuary include: Malabar pit viper, Deccan ground gecko, Gunther's cat skink, Beddome' slacerta, Bombay bush frog and Humayun's wrinkled frog.[9]

Botanical Excursions: Biodiversity Interpretation Center:

In the western region hirda, behda, ain, sag, kinjal, narkya, (all local names) plums, cinnamon, mangoes, jackfruits are common. On the lower slopes with heavy rainfall chandan, shisav, kejal, khair, bamboo, babool are found while in region of lesser rainfall we can find bhabli, bori, chandon, Shisav, Kindal, Panbabhl, Khair and Bambu trees were commonly found. In the forest, the rainfall is low; the trees like babali, bori, tadwal were found. This area also has a lot of medicinal plants and herbs while some medicinal plants also have been protected in specific devraislike Karvand, Vagati, Ranmini Kuda, Wakore, Bharing, Bawding, Salawi, Dhavari, Aiba and Bhuikolhu. A total of 18.23 % of this district is under forest. Towards the north of the district is the National Forest of Chandoli while the Radhanagri Sanctuary is a in the Radhanagri Taluka. Both these areas are now declared as World Natural Heritage sites by UNESCO.

Flowers: Climbing plants such as shikekai and garambi are common. Shrub species and medicinal plants such as karvand, vagati (candy corn plant), ranmin (orange climber), tamalpati, (toran), dhayati (fire-flame bush), kadipatta (curry tree), narkya, murudsheng (Indian screw-fruit) and a small amount of bamboo are also found. Large numbers of ephemeral bulbs of seasonal plants are also found here.

Rare Plants: Karvi, anjani, pangira, bahava, sawar, bandugal (archidus), rametha(datpadi), narkya, hirda, toran, devrai all of the name is local language.[10]

Trekking :

Patgaon (stay) via Kadgaon to Rajapur (Dudhganga Dam Road), Rajapur (stay) to Surangi gate (hours), Surangi gate to DajipurDajipur (residence), Dajipur to Manbet via Walvan, stay at Manbet, Manbet to Borbet /takyacha Wada—Hadkyachi Sari—WaghachePani—Panyacha Dank—Padamsaut to Borbet (hours).

Adventure tourism:

Forest Tourism

Radhanagri Sanctuary has been named as a part of World Heritage by UNESCO; It has been notified in 1958 encompasses an area of 351 sq. m. it is declared a protected area for the Indian Gaur, Tiger and the Flying Giant Squirrel. There is a road of 22 km from Dajipur into the sanctuary for forest tourism as well as animal sighting spots at Waghache Pani, Sambarkhond and Bison tower. The paths from Gaganbawada to Dajipur, Waghache Pani to Hadkyachi sari and Dingas to Sambarkhond, Ugwai are good treks used by people. Today there is only accommodation provided by the Forest Department and there is a need to develop this as a tourist spot.

Shivagad

One can reach this fort of Shivgad from Malwadi in Dajipur. This fort falls in the sanctuary area and is surrounded by nature and wildlife. There are very little remaining of the old fort but this is an ancient road leading to Konkan.

Gaibi: Located on Kolhapur-Radhanagari road and there exists a mosque and peer over here.

Dutramanavgad

At a distance of 12 km from Radhanagari towards west this place is between dense forests and mountains. There is a temple of goddess Vitalai and tourists regularly visit it for pilgrimage. One can also see the water dams of Tulshi and Radhanagari from here.

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THEORY OF POLITICAL RESISTANCE - A REVIEW APPROACH & DR.B.R.AMBEDKAR'S

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Introduction: The term 'Resistance' in its wider context, can be defined as 'a way by which injustices can be addressed or the relations disturbed and strained due to one or other reasons can be made favorable and better'. By resistance, woes of an individual can be made general and by raising a collective struggle movement it can be addressed. The woes and problems can be innumerable; hence, naturally, the ways of resistance also could be innumerable. Will living beings, for their survival, have to face attacks from both living and non-living beings in the kind of surrounding and environment they live. For sustenance of their lives, humans have developed different systems of resistance. In other words, it appears that human body has inherited the ability to resist. Which in medical terms, has been in born and therefore, it some bacteria/viruses or any foreign body attacks the human body or try to enter it, the body resistance grows extensively. It means resistance is an in born tool humans have obtained. The reaction of resistance is made clear by biology.

Theory of Political Resistance & its Origin in World -:

Resistance exists for protecting human values and right's when man-made opposing theories deny such values. It could be said as theory of resistance and therefore, When the government or administration implements some wrong policies or takes some improper decisions and they are opposed by the public, then such opposition could be known as political resistance theory. In the ancient times, in India, such theory of resistance was laid down, for the first time by Goutam Buddha. In the senate of Shakya Sangh, when it was decided by majority of votes that the crisis of water distribution be solved by revolting against or battling against Koliya republic state, it was Goutam Buddha who opposed it and advised the senate that no problem can be solved with battles, have discussion by way of appointing representative committees. However, when the majority of senators declared war, Goutam Buddha renunciated his Sangh and thus, initiated in laying down a unique ideal before the world Dr.Babasaheb Ambedkar, who was generally influenced by the philosophical thought of Goutam Buddha raised a movement against the established, traditional social system which had inflicted in justices on so called untouchable, down-trodden castes, for the purpose of getting back the human right and human values. His movement was of social and political nature, through which, he accepted the middle way expected by Goutam Budhha and thus, put forth his theory of social and political resistance. For this reason, it appears that this theory of political resistance professed by Dr.Babasaheb Ambedkar has to be studied theoretically as a political theory in political science.

Henry Thoroue's Duty of Civil Disobedience -: As mentioned above, this theory of resistance was introduced by Goutam Buddha in ancient India. In the modern times, some western thinkers also have expressed their thought on the theory of resistance. Henry Thoroue in his essay book, entitled "Duty of Civil Disobedience" expressed the concept of civil disobedience through the feeling of resistance. Due to some incident that took place in his life, he did paid any local taken or personal tax, which resulted into his arrest and imprisonment. Later someone paid his tax and then he was released. This made Thorue very irritated. He realized how the political power could mussel on individual. As the result of it, he began delivering lectures on "Right and Duties of an Individual person toward Government". All his speech was collected into a book 'Duty of civil Disobedience'. According to his theory of political resistance, we need not law more than necessary. We should be Self-reliant and self- dependent. As well, we must be prepared to work hard. He further professed that he was not born to serve others as a slave. "I will breath as I feel if some vegetation does not continue to live on its own, it dies. The same rule applies to human beings, too. If the government represses the freedom of innocent people, then the wise people in movement should prepare to be in the prison." Thus, Thoroue expressed his theory of resistance through civil disobedience.

Nicholvich Tolstoy's Thoughts of War Vs Peaceful War -: Count Leo Nicholvich Tolstoy was another philosopher, great Russian philosopher who professed philosophy of resistance Through Sattyagraha (insistence on truth) and non-co-operation. Tolstoy advocated a thought of stateless state. According to his thought, there is no need of a state, because existence of a state opposes individual's development and hence, it must be demolished. He opinioned that if this is believed a new society will come in to existence based on Christian principles of truth, love, sacrifice, non-

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Research Article

Role of the Red Ribbon Club

Santosh B. Nilakhe
Smt. Meenalben Maheta College Panchgani, (MS), India.

Introduction

AIDS is a serious challenge and is as much a social and political phenomenon as it concerns a challenge to biological and medical sciences. AIDS is a silent Killer disease caused by Human Immune Deficiency Virus (HIV). It is no longer restricted to specific regions in the world or individuals with high risk behavior, rather it can infect and affect any body, children to old aged, rich or poor, male or female and anywhere i.e. rural-urban, remote, developed, developing under developed countries or states. HIV/AIDS is not merely a medical problem: the manner in which the virus is impacting upon society reveals the intricate way in which social, economic, cultural, political and legal factors act together to make certain sections of society more vulnerable. HIV is currently spreading in the world at the rate of one new infection in every fifty seconds. The HIV/AIDS is not confined to any one class, community, religion, age group, sex or profession, according to the Indian Health Organization (IHO), Women and Children are believed to be more prone to AIDS. The HIV infection is spread over all regions and all groups. HIV, the Virus, has become one of the world's most serious health and development challenges. According to UN AIDS Report, all over the world 34 million are currently living with HIV/AIDS in 2011. More than 25 million people have died of AIDS worldwide since the first case was reported in 1981. In 2008, two million people died due to HIV/AIDS, and another 2.7 million were newly infected. Today, India is home to the largest AIDS epidemic in the world with 5.7 million people living with the disease of these merely 48% are women, and this number is rising fast. While the prevailing notion is that the majority

Under the NACP III youth have been identified as a vulnerable group special attention. Recognizing the heterogeneity of the youth NACP III aims to promote RRC to cover youth at risk to both in campuses as well as in society .To create and provide opportunity to the real of volunteerism among youth to contribute towards the control of HIV/AIDS RRC in the educational field will be formed. Red Ribbon is the international symbol of HIV/AIDS awareness. It is being worn by increasing number of people around the world to demonstrate their care and concern about HIV/AIDS for those who are living with HIV, for those who are ill, for those who have died and for those who care for and support those directly affected. The Red Ribbon offers a symbol of hope and support for those living with HIV, for the continuing education of those not infected, for maximum efforts to find effective treatments, cures or vaccines and for those who have lost friends, family members or loved ones to AIDS. But the Red Ribbons are not enough. The Red Ribbon is only a useful symbol in the long run, when attached to words and deeds that actually make a difference.

What is the Red Ribbon?

The Red Ribbon is the international symbol of HIV/AIDS awareness. It stands for 'Care and Concern". It is being worn by increasing numbers of people around the world to demonstrate their care and concern about HIV/AIDS- for those who are living with HIV, for those who are ill, for those who have died and for those who care for and support those directly affected. Hope the Red Ribbon is intended to be a symbol of hope Ð that the search for a vaccine and cure to halt the suffering is successful and the quality of life improves for those living with the virus. Support The Red Ribbon offers symbolic support for those living with HIV, for the continuing education of those not infected, for maximum efforts to find effective treatments, cures or vaccines, and for those who have lost friends, family members or loved ones to AIDS. But the Red Ribbons are not enough. The Red Ribbon is only a useful symbol in the long run when attached to words and deeds that actually make a difference. If you are offered a Red Ribbon, you are asked to take it and wear it as a tribute to the millions of people living with or affected by HIV and AIDS worldwide. Anyone can wear a Red Ribbon. You don't have to be gay, or HIV positive or living with AIDS to demonstrate that you have an understanding of the issues surrounding HIV and AIDS. The Red Ribbon project is a grass-roots effort. There is no "official" Red Ribbon.

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living with the virus. The Red Ribbon offers symbolic support for those living with HIV, for the continuing education of those not infected, for maximum efforts to find effective treatments, cures or vaccines, and for those who have lost friends, family members or loved ones to AIDS. But the Red Ribbons are not enough. The Red Ribbon is only a useful symbol in the long run when attached to words and deeds that actually make a difference. If you are offered a Red Ribbon, you are asked to take it and wear it as a tribute to the millions of people living with or affected by HIV and AIDS worldwide. Anyone can wear a Red Ribbon to support the cause.

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Biodiversity of unicellular cyanobacteria from some rice field soils of Satara District (MS)

Kamble Priyadarshani* and Karande VC[1]

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ABSTRACT

Blue Green Algae which are also called as cyanobacteria are one of the most important nitrogen fixing photoautotrophs present on the earth since 3.5 billion years. They are known to be found in almost all photic habitats including water bodies, glaciers as well as all terrestrial ecosystems. Paddy fields represent one such habitat. Because of their autotrophic and diazotrophic nature they flourish in rice fields and known to sustain the fertility of this ecosystem. They vary in their morphology. Some of them are unicellular while some are multicellular filamentous. An attempt has been made to document unicellular cyanobacteria from rice fields of Satara district in Maharashtra State. As many as 18 species of unicellular cyanobacteria were recorded from the study area. Order Chroococcales has been reported by nine of genera and 18 species. The genera *Aphanocapsa, Aphanothece* and *Gloeocapsa* were frequently reported.

Keywords: Biodiversity, Chroococcales, Cyanobacteria, Rice fields, Unicellular.

INTRODUCTION

The Blue Green Algae are unicelludar or filamentous that sometimes form structures recognizable with naked eye, but usually requires a microscope for identification, they differ from other groups in this flora in that they are prokaryotes.

Their cell contents are not differentiated in to membrane bound structures such as the nucleus, chloroplast, and mitochondria. The popular name for the group Blue Green Algae comes from the color of the cells seen under the microscope. The pigments in their cells like chlorophyll-a, phycocyanin, phycoerythrin express their colour (Kondo and Yasuda 2003). This is because many species have a sheath around individual cells or the whole filament and this sheath is often golden or dark brown, though sometimes a shade of red. The capacity of several cyanobacteria to fix the atmospheric nitrogen is a significant biological process of economic importance (Anand 1989). These

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SOCIO-ECONOMIC IMPACT OF E-COMMERCE ON INDIA

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Abstract:

E-commerce continues to grow rapidly, it couldhave significant effects on the social and economic structures of economy. The impactsof these changes are diverse and may even widen the digital divide among nations, alterthe composition of trade, disrupt labour markets, and change, taxation. Widespread use of the Internet for e-commerce may have ramifications for intellectualproperty rights, privacy protection, and data filtering, etc. The revolution in computing and communications of the past few decades, indicate thattechnological progress and use of information technology will continue at a rapid pace. The Internet's growth and e-commerce has created to create fundamental change ingovernment, societies, and economies with social, economic and political implications. The growth in e-commerce has a few negative social consequences as well. E-Commerce has resulted in oriented Society in which the main focus is on personal growth and decline in family values. E-Commerce has adversely affected the earnings of various micro retail traders. E-Commerce, if used properly can prove to be beneficial to the society otherwise it may be the reason of spoiling the environment for forth coming generations.

Key words : e-commerce, socio-economic, impact, society

ntroduction

The revolution in computing and communications of the past few decades, indicate thattechnological progress and use of information technology will continue at a rapid pace. The Internet's growth and e-commerce has created to create fundamental change ingovernment, societies, and economies with social, economic and political implications(Boulton et al., 2000; McGarvey, 2001). These advances present many significantopportunities but also are having wide-ranging effects across numerous domains ofsociety, and for policy makers. Issues involve economic productivity, intellectualproperty rights, privacy protection, and affordability of and access to information,among other concerns (Sharma and Gupta, 2001; 2003b). Electronic commerce promisesto be the momentum behind a new wave of economic growth (Mariotti and Sgobbi, 2001). E-commerce has already improved business value by fundamentally changing the waysproducts are conceived, marketed, delivered, and supported. The relationship andinteraction of various stakeholders such as customers, suppliers, strategic partners,agents, and distributors is entirely changed. On the positive side, e-commerce has beencreating opportunities for individuals and businesses in the new economy. E-commerceis helping organizations to reduce transaction, sales, marketing, and advertising costs. E-commerce is also helping businesses to reach global markets efficiently 24 hours perday, seven days per week, and 365 days per year. Many of the benefits come from improvedconsumer convenience, expanded choices, lower prices, and the opportunity for betterinteractions with partners,

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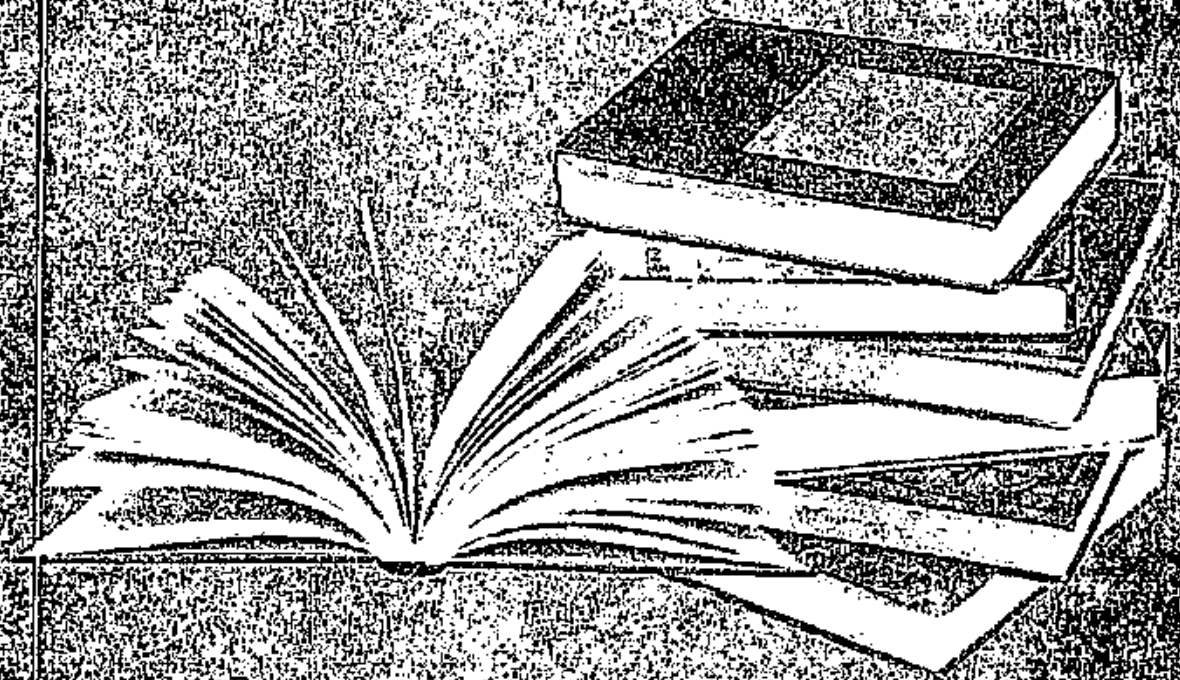

समीक्षा : सिध्दांत आणि व्यवहार

संपादक

प्रि. डॉ. भाऊसाहेब कराळे प्रा. डॉ. शिवलिंग मेनकुदळे

प्रमाणे मराठी साहित्याचे आकलन, आस्वाद आणि मूल्यमापन करण्यास चे समीक्षक तयार झाले नाहीत. उलट त्या समीक्षा पद्धतींना चुकीच्या ठरवण्याचा प्रयत्न झालेला दिसतो. मराठी साहित्याची समीक्षा करण्यासाठी स्थान केलेल्या कसोट्या लावून साहित्याची समीक्षा आज होताना दिसते. त्यामुळे नवे आव्हाने तयार झाली आहेत. त्याचा विचार प्रस्तुत शोधनिबंधात करण्याचा प्रयत्न केला आहे.

समीक्षा म्हणजे काय? :-

समीक्षा म्हणजे काय? हे सांगताना ढोबळ मानाने असे म्हणता येई की, लेखकाने लिहिलेल्या साहित्यकृतीचे आकलन, आस्वाद आणि तिचे मूल्यमापन ह्या ग्रंथ लेखकाने लिहिलेल्या साहित्याचा अन्वयार्थ समीक्षक स्वत:च्या शब्दांत मांडत असतो. त्याने लावलेला अन्वयार्थ इतरांच्या दृष्टिकोणातून बरोबर चुकीचा असे म्हणता येणार नाही. कारण प्रत्येक गोष्टीकडे पाहण्याचा दृष्टिकोण व्यक्तिनिहाय वेगवेगळा असतो. उदा. एखादा माणूस दिवसा ढवळ्या गटाराच्या काठावर पडलेला असेल तर त्याच्याकडे पाहण्याचा दृष्टिकोण व्यक्तिनिहाय वेगवेगळा असू शकतो. त्याचप्रमाणे साहित्याच्या बाबतीतही वेगवेगळे दृष्टिकोण असू शकतात. परंतु तरीही साहित्य समीक्षेत शास्त्रशुद्ध मांडणी करण्याच्या दृष्टीने काही तात्त्विक घटक लक्षात घ्यावे लागतात किंवा ते योजावे लागतात यातून समीक्षेची मांडणी होते. अशा मान्य सिद्धांताच्या नियमात राहूनच साहित्यकृतीचे मूल्यमापन होणे आवश्यक मानले जाते.

साहित्यात समीक्षा व्यवहार कशासाठी केला जातो हे पाहिले असता साहित्यकृतीचे आकलन करुन घेणे आणि तिचे मानवी जीवनमुल्यानुसार मूल्यमापन करणे यासाठी समीक्षा व्यवहार असतो. याबाबत डॉ. मनोहर जाधव म्हणतात - आकलन आणि आस्वाद समीक्षा व्यवहारातील पहिली पायरी वरील दोन्ही अंतिमत: मूल्यमापन ही समीक्षाशास्त्राच्या दृष्टीने महत्त्वाची बाब आहे. तिन्ही बाबी परस्परावलंबी असतात. याचा अर्थ असा की, केवळ आकलन पुरेसे नाही. कलाकृतीचे सगळे रहस्य कळावयाचे असेल तर

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Review of 'Start up' Make in India and MUDRA schemes for enhancement of Women Entrepreneurs in Maharashtra

Dr. Sapkal H.G. Head Department of Commerce & Research Guide
Ramkrishna Paramhansa Mahavidyalaya, Osmanabad

Abstract: The Government of India has attempted a few activities and initiated approach measures to cultivate a culture of advancement and enterprise in the nation. Employment creation is a preeminent test confronting India. With a huge and one of a kind statistic advantage, India, be that as it may, can possibly improve, raise business people and make occupations for the advantage of the country and the world. In the current years, a wide range of new projects and chances to sustain development have been made by the Government of India over various areas.

Keywords: Mudra, Make in India, Women, Entrepreneur

Introduction:

1. **Startup India:** Through the Startup India activity, Government of India advances business enterprise by coaching, sustaining and encouraging new companies for the duration of their life cycle. Since its dispatch in January 2016, the activity has effectively given a go various striving for business people. With a 360 degree way to deal with empower new companies, the activity gives a complete four-week free web based learning program, has set up explore parks, hatcheries and startup focuses the nation over by making a solid system of the scholarly community and industry bodies. All the more significantly, a 'Fund of Funds' has been made to enable new businesses to access subsidizing. At the center of the activity is the push to manufacture a biological system in which new businesses can advance and exceed expectations with no obstructions, through such components as online acknowledgment of new companies, Startup India Learning Program, Facilitated Patent recording, Easy Compliance Norms, Relaxed Procurement Norms, hatchery bolster, development centered projects for understudies, subsidizing support, tax breaks and tending to of administrative issues.
2. **Make in India:** Intended to change India into a worldwide plan and assembling center point, the Make in India activity was propelled in September 2014. It came as an effective call to India's natives and business pioneers, and a solicitation to potential accomplices and financial specialists around the globe to redesign out-dated procedures and approaches, and incorporate data about circumstances in India's assembling division. This has prompted reestablished trust in India's abilities among potential

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25 Impact of Recent Trends in Management in Changing Global Environment

Asst. Prof. Mr.Lalit Shivnath Pagare
Researcher Scholar, St Wilfred Collge of Law, Panvel Raigad In Faculty of Management Science Dr. Babasheb Ambedkar Marathwada University, Aurangabad.
Dr. H. G. Sapkal
Associate Professor & Research Guide Ramkrishna Paramhanas Mahavidyalaya, Osmanabad.

Abstract

India has open its door to compete in global competition there are lot of foreign investment in form of capital and Industry in our country, since we know India is having the highest population of the world it has low cost labour. This has changed the economic environment it effected structures, styles and economic firmament of our country. The input globalization is very severe, from human and social or ethical perspective to the strategic perspective. The most competitive and innovative company and industry have change theirs IR/HRM working style they are not using traditional function which encourages innovation and which help the corporate business to achive their objectives and strategies. This globalization has the widest scope in the present senerio. For us theimpact on industrial Relations scenario is very high in our country and hence we try to built a futuristic model of Industrial relations in our country.

Literature

The research work reduces the wider material of effect of globalization over Industrial working, Starting from 1995's till today similar research has been conducted and published by many scholars and researchers in journals and blogs example- Asian academy of management journals, citehr.com, Indian Blogger.com thomusa-ocf.com, ficci.com.etc. The References has been cited at the end of the research paper.

Introduction

Traditional Industrial working

Before 1990's broadly speaking the relationships between the employers and employees were with the intervention of government. During this period the employers were very strong who use to force the workers to work long hours with less wages and exploit weaker working section labour, in revolt of this, they took action against the employer, the workers got together with a strategies to face the challenges and use collective bargaining weapon to face challenges and use this weapon against employers. They started union representation and started collective bargaining as a main weapon to improve the weaker section of employee

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Evaluation of central government skill development program to access employment upliftment for rural youth

Dr. Sapkal H. G.

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Abstract: One of the major and more attraction issue in India is unemployment and basically in rural area of India. Thus rural individuals are moving towards urban zones to acquire better business openings and civilities of life. Agribusiness is the vital monetary action yet because of post reaps misfortunes like sustenance weight reduction, loss of nourishment quality, loss of nourishment esteems, and loss of financial esteems, make nourishment less adequate by buyers that outcomes poor winning or less benefit to ranchers, a strong factor of rural neediness. Rural youth are taught yet not gifted dissimilar to urban youth. Absence of new, difficult and better openings for work in farming area restricts the openings for work for instructed country youth. So there is a need to produce agricultural entrepreneurship and new horticultural job openings for work to diminish relocation of country individuals and to advance rural upliftment. Along these lines the business enterprise in sustenance preparing and esteem expansion of sustenance can make blast in work for rural zones. It is a superior method to battle poverty and for country development. Government has begun such a significant number of professional and vocational courses, preparing projects, plans and projects for skill development of youth to advance rural business enterprise.

Keywords: Skill Development, Rural, Entrepreneurship, Agri- Entrepreneurship

Introduction: Anti-poverty of India procedure contains an extensive variety of poverty alleviation and business age programs, a considerable lot of which have been in task for quite a long while and have been reinforced to produce greater work, make beneficial resources, grant specialized and entrepreneurial skill and raise the wage level of poor people. The Ministry of Rural Development, Government of India is the office which has been actualizing numerous improvement plans since freedom with an order to kill poverty, create business and build up sustenance security. Under these plans, both wage work and independent work are given to the general population beneath the poverty line. In 1998-99, the Government of India proposed to bring together different neediness alleviation and work age programs under two general classifications of Self Employment Schemes and Wage Employment Schemes.

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RESEARCH DIRECTIONS

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Critical analysis of central Government Revenue Pre and Post Period of GST

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Abstract: Goods and Service Tax (GST) has turned into a reality from July. There are desires that the tax change will help the Indian economy and enormous move will be seen from sloppy to sort out division. Be that as it may, some close term hiccups can be seen for the following maybe a couple quarters. As indicated by market experts, work creation will remain a worry as the chaotic area shifts towards the composed segment. In the coming slides, ETMarkets.com takes a gander at the different parts and likely effect of GST on them.

Keywords: Gods and Service Tax, State , Indirect Tax, Direct Tax

Introduction:

In today's scenario we pay various taxes i.e. Direct and Indirect taxes, which are felt as burden on us and due to these taxes the corruption is increasing. So, to overcome from all these taxation system the Central Government has decided to make one tax system i.e. Goods and Services Tax (GST). GST is one of the most critical tax reforms in India which has been long awaiting decision. It is a comprehensive tax system that will subsume all indirect taxes of State and central Governments and whole economy into seamless nation in national market. It is expected to remove the burden of existing indirect tax system and play an important role in growth of India. GST includes all Indirect Taxes which will help in growth of economy and proves to be more beneficial than the existing tax system. GST will also help to accelerate the overall Gross Domestic Product (GDP) of the country. GST is now accepted all over the world and countries are using it for sales tax system. This paper will help to show that, what will be the impact of GST after its implementation, difference between present Indirect Taxes and GST and what will be the benefits and challenges of GST after implementation.

India is the hub of taxes where people pay many taxes which create confusion for them. Presently we pay two types of taxes i.e. Direct and Indirect in various sectors. Direct Tax paid directly to the government

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Research Paper 1 Commerce

Review of Claim Settlement of Private companies and LIC in Life Insurance Sector

Abhay B. Deshmane
Research Student

Dr. G. Sapkal
Research Guide

ABSTRACT

In this research paper attempt is made to study of claim settlement ratio of private insurance companies and public undertaking LIC for the period of one year i.e2010-11 with the help of secondary data from through published reports, newspapers, journals, & websites. The LIC of India has high claim settlement ration and very low claim pending ratio compare to other insurance companies.

Introduction

Life insurance is way of securing Human life by providing economic support to insured and dependents. Human life became more risk full and uncertain due to competition, attraction to new standard of living and lifestyle, career advancement, human mobility, stress and different diseases put human life in danger. In such situation, Insurance plays role of social security tool, it leads to saving and investment as well as security to human life. Common man, businessman, traders, farmers, professionals are always facing uncertain risk to their life in day to day life. Insurance undertake the financial responsibility in case of death or disability of man but policy holder has to search for good company, product and service. One of the criteria to judge the value and accountability of insurance company is claim settlement and its ratio.

Menning of Life Insurance

Insurance is contract between insurance policy holder and insurance company where insurance company promises to pay fixed amount after completion of policy term to insured

2017-18

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Life Insurance Industry : Opportunities and Challenges

Abhay G. Deshmane
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Research Guide

2 RESEARCH PAPER - COMMERCE

ABSTRACT

The beginning of this new era in the development of insurance industry saw proliferation of new products and distribution channels which promoted rapid growing.. Given the above scenario, the current challenges in the life insurance industry have various factors guiding the market. Hence, the researcher is covering essential factors affecting life insurance industry severely such as environmental factors, domestic conditions, Global conditions, distribution challenge, consumer challenge, impact of regulatory changes, perception of influencers and way forward.

Key words : Life Insurance, challenges, Industry, factors, and way forward

INTRODUCTION :

The year 2011 brought in the beginning of a new decade for Indian Life Insurance industry. The preceding years were significant for the life insurance industry in India after the opening of the sector by the government. During the period 2000-2008, combined with India's rapid rate of economic growth the Indian Life Insurance Industry gained its foothold in the country. Private sector insurers ventured into the country and

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Impact of EDP Provided by the MCED to Entrepreneurs with Special Reference to Osmanabad District

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1 Research Paper - Commerce

ABSTRACT

In the new world after globalization the significance of industries small, medium and big has considerably increased and there is a need to improve small scale industries in the context of total quality management. The concept of entrepreneurship has grown significantly in the post globalization era and it requires research support.

In order to study the significance of MCED in the entrepreneurship development, we have to adopt a scientific method for systematic exploration. The role, relevance and efficiency of MCED can be evaluated in the changing global era.

MCEDs Significance can also be classified on the basis of its functions. It is the man of science is firmly committed to the belief that truth, can be established on the bias of evidence that our sense organs can get at. The story of MCED is also related to search truth is based on evidences. The modern management science is focused on scientific Management. Which is explorer on the basis of scientific methods. Hence developing correct research

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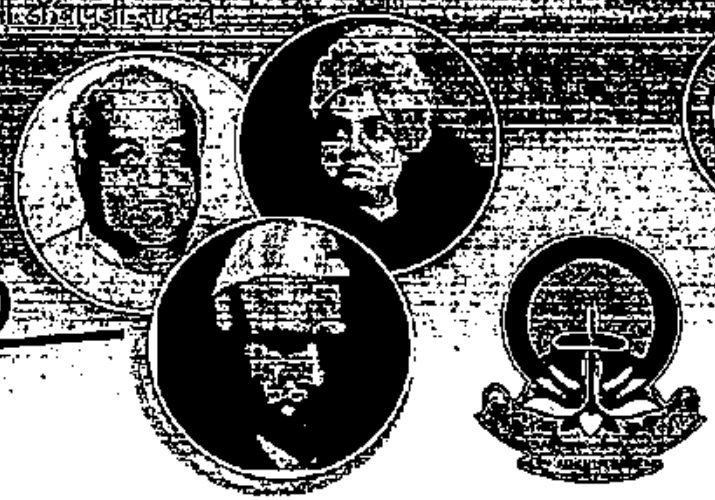

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Executive Editor — **Mr.K.N.Patil**

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Padmabhushan Dr.Vasantraodada Patil Mahavidyalaya,
Tasgaon, Tal: Tasgaon, Dist:Sangli

५) निष्कर्ष :

लोकसंख्येच्या तुलनेत जर दरडोई उत्पन्न कमी असेल तर अतिरिक्त लोकसंख्या समस्या निर्माण होते. भारतासारख्या विकसनशील देशात अतिरिक्त लोकसंख्या पोसणे म्हणे ठतममक व रसायनिक शेती शिवाय पर्याय नसला तरी त्याच्या होत असलेल्या परिणामांचा विचार करता सेंद्रिय शेती स्वीकार करणे क्रमप्राप्त ठरते. शाश्वत विकासाला ते गरजेचे आहे. अन्यथा त्या सोबत येणाऱ्या समस्यांना पुढील काळात सामोरे जावे लागणार यामध्ये दुमत नाही.

संदर्भ :

१. Economics Times : News Paper 3rdsept 2017-09-13

२. National Programme For Organic Production

३. आंतरराष्ट्रीय फेडरेशन सेंद्रिय शेती संस्था (IFOAM)

४. बायोडायनॉमिक असोसिएशन ऑफ इंडिया

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'वाढती लोकसंख्या: भारतीय अर्थव्यवस्थेसमोरील आव्हान'

प्रा. राजाराम कांबळे
अर्थशास्त्र विभाग,
श्रीमती मीनलबेन महेता कॉलेज, पाचगणी
शिवाजी विद्यापीठ कोल्हापूर

प्रस्तावना—

लोकसंख्या हा घटक कोणत्याही देशाचे त सामर्थ्य असते. देशाच्या प्रगतीला विकासाला हातभ लावणारा तो. एक प्रमुख स्त्रोत असतो. काही वर्ष भारतातही संपुर्ण जगाच्या तुलनेत तरूणांची संख अधिक असणार आहे. आणि त्यादृष्टीने भारत जगाती सर्वाधिक तरूण देश असेल असे मोठया अपेक्षे आपण म्हणतो पण हा तरूण कसा असेल या विश्लेषण करायला आपण धजवत नाही. भारताती लोकसंख्येची वाढ अशाच भरमसाठ प्रमाणात झाल तर सशक्त आणि आर्थिकदृष्टया समाधानी तरू आपल्या देशात असतील का, हा प्रश्न आहे.त्य दृष्टीने विचार केला तर वाढती लोकसंख्या भारताच्य प्रगतीतील एक मोठा अडथळा बनत चालला आहे भारतीय अर्थव्यवस्थेपुढे वाढती लोकसंख्या फार मो आव्हान आहे .

गेल्या काही वर्षापासून जगभरात विविध देशांम ये प्रगतीचे वारे वेगाने वाहात आहे. जागतिकिकरण आणि आधूनिकिकरणामुळे जग जवळ आले आहे त्यामूळे प्रगतीच्या विकासाच्या नवनवीन वाटा उपलब्ध होत आहेत. मात्र गरीबी आणि दारिद्रय या समस्यावर मात करण्यात आल्याचे दिसत नाही. गरीबी आणि दारिद्रय या समस्या वाढीस लागण्यामागे वाढती लोकसंख्या हे एक प्रमुख कारण आहे. साहजिकच लोकसंख्यावाढीवर नियंत्रण आणणे हा गरिबी आणि दारिद्रय निर्मूलन कार्यक्रमातील महत्वाचा

दिसून येतात ० ते १४ वयोगटातील लोकसंख्येमध्ये ४१ टक्क्यावरून ३० टक्क्यापर्यंत घट झाली आहे. तर १५ ते ६० वयोगटातील लोकसंख्येमध्ये ५३. ३टक्क्यावरून ६३ टक्क्यापर्यंत वाढ झाल्याचे दिसते. ६० वर्षापेक्षा अधिक वय असणारी लोकसंख्या देखील या कालखंडात ५.७ टक्क्यावरून ७ टक्क्यांपर्यंत वाढली आहे. लोकसंख्येच्या वयोमानानुसार रचनेकडे पाहता भारतात कर्त्या लोकसंख्येमध्ये प्रचंड वाढ झाल्याचे दिसते भारताच्या अधिक विकासास ही लोकसंख्या गती देण्यास मदत होंणार आहे. माजी राष्ट्रपती डॉ.ए पी जे अब्दूल कलाम यांच्या स्वप्नातील महासत्ता भारत घडविण्यास या लोकसंख्येचा निश्चितच उपयोग होईल.

जननदर व मृत्युदर प्रमाण– (१९५१ ते २०११)

कालावधी	१९५१ते ६०	१९६१ते ७०	१९७१ते ८०	२०१० ते ११
जननदर	४०.०	४१.२	३७.२	२१.१
मृत्युदर	१८.०	१९.२	१५.०	७.२

संदर्भ: भारताचा जनगणना अहवाल १९५१ ते २०११

वरील कोष्टकात दर वर्षी एक हजार लोकांमागे जन्मास येणा–या बालकांचे प्रमाण म्हणजेच जननदरात झालेल्या वाढीचे विचारात घेतले आहे. सन १९५१ ते ६०या दशकामध्ये जननदर ४० होता. तर त्याच वर्षी मृत्युदर १८ होता. १९६१ ते ७० च्या दशकामध्ये जननदर ४१.२ तर मृत्युदर १९.२ इतका होता. सन १९७१ ते १९८० च्या दशकामध्ये जननदरात घट होवून तो ३७.२ पर्यंत घटला,मृत्युदर देखील घटून तो १५ इतका झाला. २०१० ते ११ या वर्षी जननदर २१.१ तर मृत्युदर ७.२ होता.

सन ६१ ते७० या दशकामध्ये जननदरामध्ये अल्पशी वाढ झाली याचे प्रमुख कारण म्हणजे आरोग्याच्या सुविधांमध्ये झालेली वाढ व व लोकांच्यात असलेले अज्ञान व रूढी परंपरा होय. एकुण जननदर व मृत्युदराचा विचार करता दोन्हीमध्ये लक्षणीय घट झाल्याचे दिसते. मात्र जननदरापेक्षा मृत्यूदर अधिक वेगाने घटला आहे. हेच भारताच्या लोकसंख्या वाढीचे प्रमुख कारण दिसून येते.

भारतातील लोकसंख्येची घनता –

वर्ष	१९५१	१९६१	१९७१	१९८१	१९९१	२००१	२०११
घनता	११८	१४२	१८६	२१६	२६७	३२४	३८२

संदर्भ: भारताचा जनगणना अहवाल १९५१ ते २०११

वरील तक्त्यावरून लोकसंख्येच्या घनतेचा विचार केला असता असे लक्षात येते की १९५१ मध्ये लोकसंख्येची घनता ११९ होती. ती वाढून १९६१ मध्ये १४२ पर्यत गेली. तर १९७१ मध्ये लोकसंख्येची घनता १८६ एवढी झाली. ती १९८१ मध्ये वाढून २१६ झाली. त्याचबरोबर १९९१ मध्ये ती २६७ इतकी होती. २००१ मध्ये लोकसंख्येची घनता ३२४ इतकी झाली. तर २०११ मध्ये ती वाढून ३८२ झाली. १९५१ ते ६१ या दशकात लोकसंख्येच्या घनतेत ३४ ने वाढ झाली. १९६१ ते ७१ या दशकात लोकसंख्येच्या घनतेत ४४ ने वाढ झाली. तर १९७१ ते १९८१ मध्ये ही वाढ ३० ने झाली. १९८१ते ९१ मध्ये भारताच्या लोकसंख्येच्या घनतेत ५१ ने वाढ झाली. १९९१ ते २००१ ही वाढ ५७ होती. तर २००१ ते २०११ मध्ये लोकसंख्येची घनता ५८ एवढी झाली यावरून असे दिसून येते की १९५१ ते २०११ या कालखंडात लोकसंख्येची घनता दिवसेंदिवस वाढत चालली आहे.

स्वातंत्र्योत्तर कालखंडामध्ये १९५१ पासून २०११ चा लोकसंख्या घनतेचा विचार केला असता १७% सातत्याने वाढत जाणारी शहरी लोकसंख्या ३१% झाली. शहरी लोकसंख्येच्या वाढीचा दर हा ३१.८% अर्थात लोकसंख्या वाढीच्या १७.६% तूलनेत जास्त म्हणजे १२.२% इतका आहे.

स्त्री पुरूष प्रमाण– (१९५१ ते २०११)

(प्रती हजार पुरूषांच्या पाठीमागे महिलांची संख्या)

वर्ष	१९५१	१९६१	१९७१	१९८१	१९९१	२००१	२०११
स्त्री पुरूष प्रमाण	९४६	९४१	९३०	९३४	९२६	९३३	९४०

संदर्भ: भारताचा जनगणना अहवाल १९५१ ते २०११

स्वातंत्र्योत्तर कालखंडात १९५१ मध्ये दर हजार पुरूषांमागे स्त्रीयांची संख्या विचारात घेता स्त्रीयांच्या प्रमाणात सातत्याने घट झाल्याचे दिसून येते. १९५१ मध्ये हे प्रमाण १००० पुरूषामागे ९४६ स्त्रिया असे होते. १९६१ मध्ये हे प्रमाण १००० पुरूषामागे ९४१

• १९५१ ते २०११ या कालखंडात लोकसंख्येची घनता दिवसेंदिवस वाढत चालली आहे. स्वातंत्र्योत्तर कालखंडामध्ये १९५१ पासून २०११ चा लोकसंख्या घनतेचा विचार केला असता १७% सातत्याने वाढत जाणारी शहरी लोकसंख्या ३१% झाली. शहरी लोकसंख्येच्या वाढीचा दर हा ३१.८% अर्थात लोकसंख्या वाढीच्या १७.६% तूलनेत जास्त म्हणजे १२.२% इतका आहे.

समारोप

देशाला स्वातंत्र्य मिळाल्यापासूनच वाढती लोकसंख्या देशाच्या सामाजिक आणि आर्थिक विकासातील मोठा अडथळा असल्याचे निदर्शनास आले आहे. त्यामुळे लोकसंख्या नियंत्रण हा विकासप्रक्रियेचा एक भाग झाला. वाढत्या लोकसंख्येने निर्माण केलेले आणि होवू घातलेले प्रश्न कसे सोडवायचे? हा खरा प्रश्न आहे. शहरामधील नागरी सोयीसुविधावर नुसता ताणच पडत नाही तर तो ताण असहय झाल्याने अनेक सोयीसुविधा एक तर पुरत्या कोलमडून पडल्या आहेत वा त्या मरणासन्न स्थितीला पोहोचल्या आहेत. मुंबईसारख्या एका- शहराचा आणि तेथील नागरी सोयीसुविधांचा विचार केला तरी या भयावह वास्तवतेची आपल्याला जाणीव होईल. एकीकडे शहरांचा विकास होतोच, तर दुसरीकडे ग्रामीण भागातील लोकांपर्यंत मुलभूत सोयीसुविधा पोहोचत नाहीत. म्हणजेच शहरे बकाल अवस्थेकडे चालली आहेत. तर खेडयापर्यंत विकास पोहोचतच नाही या साऱ्यांचे मुळ वाढत्या लोकसंख्येत आहे.

पिण्याच्या पाण्याचा प्रश्न, रस्ते, वीज, आरोग्य, शिक्षण, प्रवासाची साधने, घरांचा प्रश्न, अन्नधान्याची टंचाई, कुपोषण, बेरोजगारी, उपासमार, वाढते दारिद्रय असे विविध प्रश्न लोकसंख्या वाढीने निर्माण केले आहेत. शेती वाढवायची म्हंटली तरी शेतीयोग्य जमीन झपाटयाने कमी होत चालली आहे. वीज निर्मिती आणि मागणी यामध्ये तफावत झाल्याने कित्येक ग्रामीण भाग वीज भारनियमनाखाली आहेत. शहरातील सांडपाण्याची व्यवस्था आज कालबाहय होत चालली आहे. लोकांच्या मुलभूत गरजा भागविण्यास शहरातील संपुर्ण व्यवस्था अपूरी पडत आहे. रोजगारासाठी शहराकडे येणारे लोंढे कसे थांबवायचे ? व लोकसंख्येच्या गरजा कशा भागवायच्या लोव राहणीमानाचा दर्जा कसा उंचवायचा इत्यादी आज कळीचे बनले आहेत.

भारताकडे १३५७.९० लाख चौरस किलो जमीन आहे. जगाच्या भुभागाच्या ती २.४ ट आहे. तरीदेखील जगातल्या १६.७ टक्के लोकसंख भार आपण वाहत आहोत. ही एकच बाब लोकसंख वाढ आणि त्यानंतर उभी ठाकणारी आव्हाने, ट पुरती कल्पना देणारी आहे. त्यामुळेच एकुण लोकसं वाढीचीच आपल्याला कल्पना येत नाही तर वाढ लोकसंख्येनंतर येणाऱ्या संकटांची ती एक नांदी अ म्हणून वाढत्या लोकसंख्येला प्रभावीपणे अटकाव कर येणाऱ्या संकटांना कसे सामोरे जाता येईल,त्यासा कोणकोणते उपाय शोधावे लागतील ,या दृष्टीने विच करावयास हवा.

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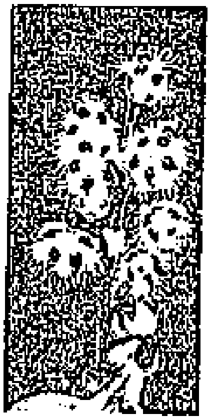

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(72 - 75) Original Article

SEASONAL VARIATION IN MUSCLE GLYCOGEN CONTENT OF CATLA-CATLA

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ABSTRACT

The indigenous fish Catla-catla from Kanher dam was studied in relation to the seasonal variation in Muscle Glycogen content. The variation observed was related to the season and maturation cycle of the fish. The percentage of glycogen obtained in both male and female species are more or less identical

KEY-WORDS- Glycogen percentage, Catla-catla and Kanher dam

INTRODUCTION-

Biochemical composition of flesh is a good indicator for fish quality, physiological condition of fish and habitat of fish. (Ravichandran *et al.*,2011).Fish is an important source of food for mankind all over the world from the times immemorial. The importance of fish as source of high quality, balanced and easily digestible protein, vitamins and poly-saturated fatty acids is well understood now. Fishes have significant role in nutrition, income, employment and foreign exchange earning of the country. Fish of various species don't provide the same nutrient profile to their consumer and nutritive value of fish varies with season. They are the most diverse group among all living vertebrates with more than 24,600 extant species currently known.They are identified by their morphological characters like appearance, shape, scales and fins etc.

Small indigenous fish species are valuable source of macro and micronutrients and play an important role to provide essential nutrients.Small indigenous fish like mola, punti, garra, amali have high nutritional value in terms of proteins and vitamins that are not commonly available in other foods. They were once abundant in rivers, streams, canals, beels and ponds. They are usually caught by a large number of subsistence fishermen and provide a major source of biochemical constituents to poor households.The variation in the chemical composition of fish is closely related to feed intake,migratory swimming and sexual changes in connection with spawning. Fishes are most important source of animal protein and have been widely accepted as a good source of protein and other elements for the maintenance of healthy body. (Andrew 2001). So it is essential to know the proximate composition of the fish to report their nutrient composition from the public health point of view.

Glycogen is a vital source of muscle energy of live animal and it is utilized during muscular action and stored up during rest. Glycogen in different tissues shows remar-kable difference. Nutritive value of fish is recognized all over the world. It is therefore obvious that an understanding of chemical composition and nutritive value of fish which are used as food Bruce (1924) observed that the variation in the composition of herring was related to age and sexual maturation. Riegel (1948) observed seasonal variation in fat, moisture and protein content of Sardine were related to the quantity of plankton on which the fish feed. Investigations on chemical composition of fish from Indian water have been reported by many workers (Chamundeswari1990). Basu and De(1938) estimated the crude protein, water and fat in Labeo rohita and Clupea ilisa.Sreenivasan *et al* .(1964) studied the variations in the composition of skeletal muscle and gonads of fresh water Labeo fimbriatus He reported that there were seasonal patterns in the variation of protein, glycogen, water and fat content of the muscle.

MATERIALS AND METHODS -

The experimental material required for present study was collected from June 2012 to May 2013 from freshwater habitat Kanher dam. It is a medium irrigation project constructed by Irrigation Department, Government of Maharashtra on Venna river near Kanher of Satara district. It is situated on latitude 17°44" 16°02"N and longitude 73°53" 43°10" E.(Google Earth, 2009). The water from dam is used for drinking, domestic purpose and irrigation as well as fishing practices (culture & capture fishery)are carried out under fishery development office Satara, (Kanher).

The freshly caught fishes were first acclimatized to the laboratory conditions.After sacrificing the fish scales, skin and bones were removed and only the flesh was used for analysis of glycogen Weighed watch glass with tissues was kept in a thermostat for drying.Glycogen was estimated by using Anthrone reagent method De Zwaan, A and Zandee,D.I. (1972). The percentage values of glycogen were calculated on the wet weight basis. The quantity of glycogen was calculated by using standard graph and multiplying by the glycogen factor 0.648. All obtained values were expressed in percentage

RESULT AND DISCUSSIONS -

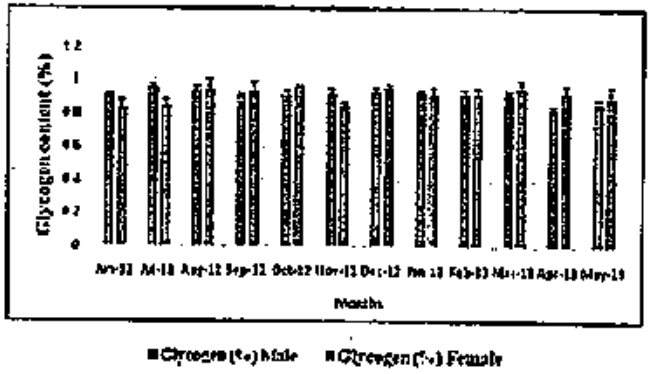
Seasonal fluctuations in the glycogen content of muscle have been studied in both the sexes in relation to maturation cycle. Table and graph shows that in muscle glycogen percentage showed fluctua-tion between 0.871 to 0.962 mg/g in male and 0.832 to 0.966 mg/g in female.Table 1and Fig.1 indicate that the glycogen percentage depleted in March 2013 to May 13 in both sexes were more or less iden-tical. The higher values were recorded in June to October and lowest in March to May.The moderate values during post spawning months may be due to high feeding activities in these months. Accumulation starts from February and attains a peak in June which is associated with attainment of maturity. Millory (1908) observed that the glycogen content of muscle fluctuate in relation to maturation and spawning. The results of present investigation indicate that the glycogen content of muscle fluctuate in relation to the maturation and spawning. The observation is in concurrence with the earlier findings of Millory (1908), Somwanshi (1983), Sonawane *et.al* (2001).

Table.1. Seasonal Variation in Muscle Glycogen during 2012-13 (mg/g)

Month	Male Glycogen (%)	Female Glycogen (%)
June	0.916±0.001	0.832±0.0048
July	0.962±0.0015	0.852±0.0036
August	0.940±0.0026	0.945±0.0062
September	0.912±0.0012	0.940±0.0051
October	0.918±0.0018	0.966±0.0011
November	0.929±0.0016	0.854±0.0013
December	0.938±0.0017	0.955±0.0019
January	0.927±0.0012	0.953±0.0048
February	0.929±0.0018	0.951±0.0025
March	0.923±0.0014	0.933±0.0055
April	0.876±0.00112	0.931±0.0024
May	0.871±0.00118	0.901±0.0067

All values are mean of four values. (Mean ± S.D.)

Fig.1. Graphical representation of variation in muscle glycogen content (%) during June 2012 to May 2013 (mg/g).



CONCLUSION-

1. Results clearly indicated a marked fluctuation of glycogen in all three seasons both in male & female fish.

2 The variation in the glycogen is also linked to their habitat and nutritive values.

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Review Article

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Habitat preferences and tolerance of ostracods in two freshwater Lakes in Aurangabad District, Maharashtra, India

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ABSTRACT

Ostracods used as indicator species in aquatic habitats, because each species prefers specific ecological conditions, which can be assessed based on the level of the response of the species to environmental changes. Present study monitored during October 2009 to September 2010. Samples were collected using plankton net of mesh size 64µ. Sample analysis was carried out with standard keys of zooplankton. Altogether 8 species of Ostracods from Kagzipura Lake and 4 species from Mombatta Lake were found. The habitat preference and tolerance level of Ostracods were correlated with the population density and physic-chemical variables. Result indicates that habitat preference fluctuates the diversity and population density of Ostracods. Finally it is concluded that all species of Ostracods do not prefer the same habitat and they tolerate different habitat with different water quality.

Keywords: Habitat Preference, Tolerance, Physic-Chemical Parameters, Population Density, Mombatta Lake, Kagzipura Lake.

INTRODUCTION

Ecological tolerance of freshwater ostracods is generally broad in terms of the physical, chemical and ecological variables of different aquatic habitats, each species show different response and tolerance to abiotic and biotic factors. Consequently ostracods distribution might be correlated with water quality and the types of habitats (Mezquita et al, 2007; Kulkoyluoglu, 2003). Ostracod species respond sensitively to environmental changes and if the species tolerances are known, it might be possible to use them as environmental indicators (Kulkoyluoglu, 2004). However, there is little information about the habitat requirements and tolerance level of many ostracods species (Meisch, 2000). Correlations have been found between species distribution, abundance and different environmental factors such as habitat type (Malamquist et al, 1997), oxygen content (Dole-Olivier et al, 1997), temperature, water level (Forester, 1991)) and ionic composition.

They are also intensively affected by a range of other habitat variables such as water depth, volume, retention time and the degree of aquatic macrophytes cover (Carbonel et al, 1988). During the development of indicator species, both positive indicator species (cosmopolitan species with wide range of tolerance to pollution) and negative indicator species (non-cosmopolitan or sensitive species with limited ranges of tolerance) have been used to determine the quality in variety of aquatic ecosystem (Robert et al, 1999).

During the last few years, ostracods species have been used as indicator species for different aquatic habitats, ponds, lakes and reservoirs (Kulkoyluoglu and Dugel, 2004, Schornikov et al, 2014). However, attempts to understand the habitat preferences of each species and their tolerance level to environmental variables are few (Kulkoyluoglu et al, 2017) and detailed information on their ecology, biology and distribution is required (Kulkoyluoglu et al, 2004). Thus, the present paper focused on the habitat preference and tolerance of ostracods correlate with population density and physic-chemical variables.

MATERIALS AND METHODS

Study area:

Kagzipura Lake is located (between latitude 19° 57' N and longitude 75° 15' E) near Kagzipura village, Tal. Khultabad 22 km away from Aurangabad city. It has depth 8 to 9 meters and used for irrigation and fishing. Mombatta lake is located (between latitude 19° 57' 42" and longitude 75° 13' 24") near Daulatabad village, 20 km away from Aurangabad city. The lake has maximum depth of 8.30 meter spread across approximately 7.2 sq.km. The lake is situated at foot hills in Daulatabad valley containing grassland mixed with tree vegetation and used for aquaculture.

The ostracods samples were collected by using plankton net of mesh size 64µ at an interval of 15 days every month for a period of one year, from October 2009 to September 2010 between 7 to 8 AM. The collected samples were kept in plastic bottles containing 4% formaldehyde solution. Both soft body parts and carapace morphology of living species were used for identification following systematic keys of Edmondson (1959), Altaff (2004) and Meisch (2000), population density is done by lackeys drop count method and physical-chemical analysis of water parameters is done by APHA (1998)

RESULTS AND DISCUSSION

In the present paper, altogether 8 species of ostracods from Kagzipura Lake and 4 species from Mombatta Lake were (Table 1). Physico-chemical parameters and population density of ostracods from Kagzipura and Mombatta Lake is given in table 2, 3 and 4.

Total 8 species of ostracods were recorded and identified from Kagzipura lake namely, *Cyclocypris globosa, Cyclocypria kinkaidia, Cypria mediana, Physocypria furfuracea, Eucypris bisponsa, Hemicypris fossuita, Cyprinottus nuddus And Stardentia elongata.* From Mombatta Lake altogether 4 species were found; they are *Stenocypris fontinalis, Candona pierce, Cyprichioncha alba* and *Cyclocypris globosa* respectively.

All the 8 species of Kagzipura Lake are cosmopolitans while 3 species of Mombatta Lake are noncosmopolitan except *Cyclocypris globosa*. Cosmopolitans can be related to their ability to tolerate wide fluctuations in environmental conditions (Yilmaz and Kulkoyluoglu, 2006). This is because cosmopolitan species generally have wide ranges of tolerance to the changes in aquatic conditions, so that they can increase their survival rate when conditions deteriorate (Meffe and Caroole, 1994). Out of the global increase in the numbers of cosmopolitan species coincides with increasing pollution that causes a global reduction in species richness. This may require a long time period, but in small scale, sudden change can occur within a very short period of time due to anthropogenic activities, which can cause an increase in density of cosmopolitans (Roca, 2000).

Kagzipura and Mombatta lakes are different from each other by habitat and water quality. In summer and rainy seasons the higher value of chloride of Kagzipura Lake can be attributed to higher growth rate of algal population which utilized CO2 through photosynthetic activities and concentration of chloride increases with the degree of eutrophication. Kagzipura Lake having high content of Calcium than Mombatta Lake. The ostracods shell better preserved in the lakes with high calcium content. They can tolerate the low dissolved oxygen in rainy and summer season. In summer season their population density is more indicating their wide

range to tolerate hypoxic conditions (Anita Kiss, 2007). Tolerance level ostracods is high during the summer and winter season with different Physico-chemical variables. This lake is having of abundance species which was particularly influenced by the presence and coverage of the macrophytes, temperature and dissolved oxygen. The more population density is recorded in the month of summer and winter season. The dominant species by population of Kagzipura Lake are *Cyclocypris globosa*, *Cyclocypris kinkaidia* and *Eucypris bisponsa*. *Cyprinottus nuddus* and *Stardentia elongata* these species are very rare. *Cyclocypris globosa* is one of the species is found in both lakes. Distribution and abundance of Cyclocypris globosa is increased due to submerged and emergent macrophytes associations (Anita Kiss, 2007).

Table 1: Diversity of ostracods from Kagzipura and Mombatta Lake during October 2009 to September 2010.

Group	Family	Genus	Species
Kagzipura lake	Cypridoidea	*Cyclocypris* *Cyclocypria*	*Cyclocypris globosa* *Cyclocypria kinkaidia*
	Cyclocyprididae	*Cypria*	*Cypria mediana* *Physocypria furfuracea*
	Cyprididae	*Eucypris* *Hemicypris* *Cyprinottus* *Stradentia*	*Eucypris bisponsa* *Hemicypris fossulata* *Cyprinottus nuddus* *Stradentia elongate*
	Candonidae	*Candona*	*Candona sp.*
Mombatta lake	Cypridoidea	*Cyclocypris* *Cyprichoncha*	*Cyclocypris globosa* *Cyprichoncha alba*
	Candonidae	*Stenocypris* *Candona*	*Stenocypris fontinalis* *Candona peirci*

Table 2: Population Density (Ind/lit) of ostracods from Kagzipura and Mombatta Lake during October 2009 to September 2010

Lake/ Month	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Kagzipura	36	20	8	20	188	216	10	40	112	22	42	130	956
Mombatta	04	-	2	-	2	8	4	6	-	-	6	12	44

Table 3: Physico-chemical parameters (mg/lit) of Mombatta Lake during October 2009 to September 2010

Months/ Parameters	Air temp. (°C)	Water Temp. (°C)	pH	Dissolved Oxygen (mg/lit)	Chloride (mg/lit)	Calcium (mg/lit)	Total hardness (mg/lit)
October	30	28	8.7	3.96	20.70	24.84	62.08
November	25	26	8.4	4.23	18.60	19.23	150
December	23	24	7.9	4.56	16.70	17.63	140
January	22	23	7.2	3.38	17.40	14.42	102.8
February	24	22	6.4	2.94	37.10	28.08	164
March	29	22	6.5	3.52	42.00	46.49	178
April	32	27	6.8	4.83	47.00	51.30	184
May	29	28	6.8	4.3	84.00	49.69	196
June	30	25	6.9	2.04	63.00	46.49	170
July	29	28	6.5	2.34	36.00	44.08	140
August	27	28	8.3	2.96	16.50	42.48	136.6
September	28	26	8.2	2.31	18.00	24.08	129.6

Table 4: Physico-chemical parameters (mg/lit) of Kagzipura Lake during October 2009 to September 2010

Months/ Parameters	Air temp. (°C)	Water Temp. (°C)	pH	Dissolved Oxygen (mg/lit)	Chloride (mg/lit)	Calcium (mg/lit)	Total hardness (mg/lit)
October	30	29	8.5	3.05	21.5	29.81	184.0
November	25	27	8.9	3.43	18.0	31.90	182.0
December	23	25	8.4	3.83	15.0	20.04	153.0
January	22	24	8.2	2.39	59.0	24.08	150.6
February	24	23	7.2	2.75	57.3	36.08	188.6
March	29	26	7.5	2.80	82.0	55.31	198.2
April	32	27	6.8	2.96	89.2	54.50	224.0
May	29	26	6.7	2.52	78.0	57.71	218.0
June	30	25	6.8	2.00	72.0	55.31	220.0
July	29	28	5.2	1.90	64.0	51.30	154.0
August	27	24	7.4	2.66	89.5	54.50	169.7
September	28	26	7.8	4.27	80.0	62.50	193.0

Mombatta Lake includes the only 4 species of ostracods with very less in number. *Cyclocypris globosa* is one of the species is dominant by population as compared to other species like *Stenocypris fontinalis, Candona pierce* and *Cyprichoncha alba.* The water parameters like temperature, dissolved oxygen, pH, chloride, chloride and total hardness of Mombatta Lake fluctuates seasonally. Shape and size of all 4 of 3 species (*Stenocypris fontinalis, Candona pierce* and *Cyprichoncha alba*) of ostracods in Mombatta Lake are large as compared to species of Kagzipura Lake. This is the major characteristics of ostracods related to the habitat and water quality. Changes of shape and increase in size of Ostracod species due to the temperature and productivity of the lake and it is influenced by environmental factors. (Baltas et al, 2000).

All recorded species from both lakes showed distinct habitat preferences and ecological tolerance. In particular temperature, dissolved oxygen content and the presence & coverage of the vegetation influenced the diversity and population density of the Ostracod species. Most species have different species-specific tolerance level to a variety of environmental conditions. Wide tolerance associated with cosmopolitan characteristics of species. Such knowledge may be useful, especially during monitoring programs when water the main focus.

From the above findings suggest that Ostracods prefers the habitat of Kagzipura Lake because it covers abundant macrophytes is the source of food and shelter to avoid the predators. Due to increasing abundant macrophytes it leads to the formation of algal blooms results water body becomes eutrophicated (Sontakke et al, 2014). They are widely tolerated to such eutrophic and oligotrohic water bodies with different physic-chemical variables. Result indicates that wide tolerance ranges and occurrence in environmental conditions from mesotrophic to eutrohic (Mezquita et al, 2007, Kulkoyluoglu, 2004; Kulkoyluoglu et al 2017).

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DIVERSITY OF SPIDERS FROM P.D.V.P COLLEGE CAMPUS TASGAON

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Abstract:
Spiders are ancient animals with a history going back over 350 million years. All spiders are carnivorous and most eat small insects, but many will eat other spiders, sometimes even ones of their own species. They are the largest order of arachnids and rank seventh in total species diversity among all other group of organisms. Spiders are an important but generally poorly studied group of arthropods that play a significant role in the regulation of insect pests and other invertebrate populations in most ecosystems.
Keywords: Spider diversity, Carnivorous, Arachnida, Insect Population

Introduction:

Spiders are air-breathing arthropods that have eight legs and chelicerae with fangs that inject venom. They are the largest order of arachnids and rank seventh in total species diversity among all other group of organisms. Spiders are ancient animals with a history going back over 350 million years. They are abundant and widespread in almost all ecosystems and constitute one of the most important components of global biodiversity. Spiders have a very significant role to play in ecology by being exclusively predatory and thereby maintaining ecological equilibrium. The current global list of spider fauna is approximately 42,055 belonging to 3821 genera and 110families (platnick, 2011). The spider fauna of India is represented by 1520 spider species belonging to 377 genera and 60 families (Sebastian and peter, 2009). There still exist major gaps in our knowledge of biodiversity of spiders in many areas within varied ecosystems of India.

All spiders are carnivorous and most eat small insects, but many will eat other spiders, sometimes even ones of their own species. Some larger species of tarantula will eat vertebrates on occasion. Instead of chewing, spiders use another technique to swallow prey. their mouths are designed to ingest only liquid food, so they use venom to liquefy the tissue of their prey, which they can then swallow spiders live in a huge variety of habitats: in thick shrubbery, high up in trees, in pastures, beneath stones and fallen trees, in burrows beneath the soil, and even in rock and coral crevices on coastlines. Because of their increasing contact with humans, many spiders now live in the corners of buildings and other man-made structures.

Spiders are found almost everywhere in enormous number., the natural enemies of insects, keep hard of agricultural pest as well as destructive and disease carrying insects, under positive control on account of their vast numbers and they destroy a far greater number of insects than do birds or other insectivores. All spiders have venom which is secreted by a poison gland and injected through a fang. However, this venom is mainly used to kill the large number of insects and mites on which they feed daily. The venom of only three species from South Africa is potentially dangerous to man. Only the female is able to bite through the skin but in most cases a full dose of venom is not injected. The venom is of a neurotoxic nature and causes symptoms and localized pain. Spider venoms are being studied for possible uses in medicine and pest control. Only two types of spiders in Texas are medically significant. House spiders, sac spiders can produce a noticeable bite.

Spiders play an important role in stabilizing or regulating insect populations, spiders are an important food source for birds, lizards, wasps and other animals all spiders produce silk, a thin, strong protein strand extruded by the spider from six spinnerets most commonly found at the end of the abdomen. Many species use it to trap insects in webs, although there are also many species that hunt freely. Silk can be used to aid in climbing, form smooth walls for burrows, and build egg sacs, wrap prey, and temporarily hold sperm, among other applications. The most characteristic feature of the spiders life is the use of its silk, the spider has hit upon the device of turning its food into silk and using it as a net to catch more food. There are several glands to produce the silken thread. Spider silk is a biopolymer fiber. Out of 20 amino acids, only glycine and alanine serve as a primary constituent of silk. Spider silk used to make nets for the transportation of arrow points, tobacco and dried poison for the arrow points.

Spiders are an important but generally poorly studied group of arthropods that play a significant role in the regulation of insect pests and other invertebrate populations in most ecosystems. Despite their abundance, ecological

importance and ubiquitous occurrences, spiders are seldom included among organisms surveyed for extensive studies and conservation (Cole, 1994). Long term and meaningful conservation requires the complete knowledge of the species in various ecosystems. In view of this it is imperative to undertake studies concerning the spider diversity of PDVP College campus, Tasgaon. Some recent workers on Indian spiders include Majumdar And Tikader (1991), Reddy And Patel (1992), Biswas and Biswas (1992), Biswas and Majumdar (1995), Biswas *Et Al.* (1996), Biswas and Majumdar (2000), Patel and Vyas (2001), Patel (2003), Biswas and Biswas (2003).

Materials and Methods:

The present study was conducted from August 2014 to December 2014 at different study sites at PDVP College Campus, Tasgaon.

Study Area

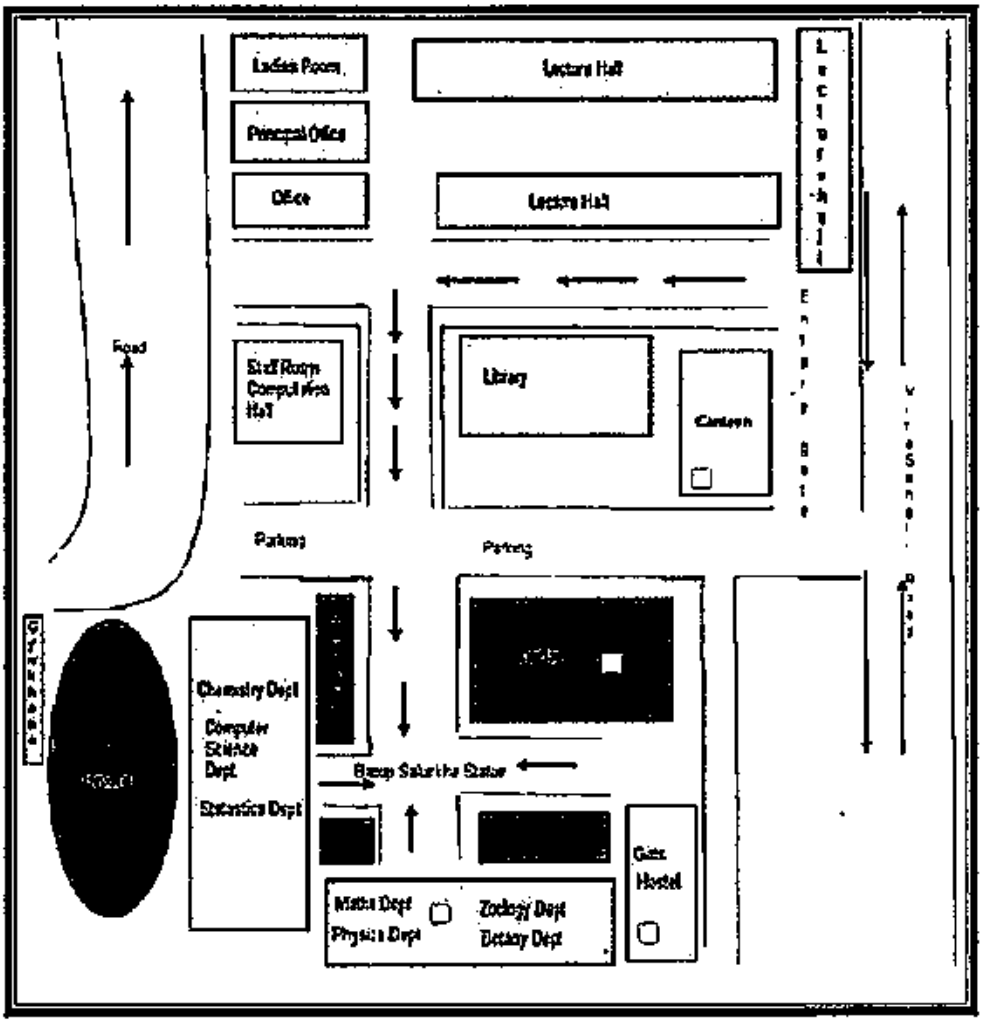

Figure: Map showing study area of PDVP College Campus, Tasgaon.

Sampling Methods

The present study was conducted from August 2014 to January 2015 at different study sites at PDVP College Campus, Tasgaon. Spiders were collected by adopting standard sampling techniques such as sweep netting, active searching and hand picking and umbrella collection. All surveys were conducted in the morning hours between 7:00 am to 10:00 am. Collected spiders were photographed in live condition identified and then released to their natural habitat. Few spiders were observed under microscope for identification and study of some morphological peculiarity.

Identification

Spiders were observed using stereo zoom microscopes for studying identification keys. All specimens were identified using the taxonomic keys for Indian spiders given by Tikader (1987). Reddy and Patel (1992), Biswas and Biswas (2003) Majumdar (1995) and Sabbastian and Peter (2009).

Preservation:

Collected spiders were photographed in life and later preserved in 70% ethyl alcohol.

Results and Discussion:

Total 12 spiders (Table 1) were recorded during the 6 month survey at college campus, Tasgaon. This area is moderate in floral diversity. In our observation araneidae is the most represented family with 12 spiders. Present study was done to observe the diversity of spider in college campus.

Table 1 :-Showing Diversity Of Spiders From P.D.V.P College Campus Tasgaon.

Sr. No	Common name of the spider
1	a)Pantropical Jumping Spider
2	b)Long Bodied Cellar Spidar
3	c) Jumping Spider
4	d)Home Spider
5	e)Hobo Spider
6	f) Friendly Tree Spider
7	h)Brown Recluse Spider
8	i)Wolf Spider
9	j)Widow Spider
10	k)Tree Trunk Spider
11	m) Three Banded Crab Spider
12	n) Small House Spider

Since the study was mainly based on visual searches and beating, other sampling methods such as pitfall trapping, fogging, sweeping would certainly increase the species list. Earlier no work has been carried out in P.D.V.P. College campus for spider diversity and this is the first report. During the present spider survey maximum number of genera is recorded from November and December. However, this is not an end and final conclusion regarding species richness in College campus as number of areas and habitats are still to be explored.

Spiders are among the highest ranked predators in food chains and community structures are closely affected by disturbance and vegetation structures compared with species inhabiting undisturbed temperate areas. Lower spider abundance and species diversity are characteristics of areas subjected to high levels of disturbance, such as grazing, agricultural practices, forestry, and burning. Spiders are suggested to be good indicators of the effect of environmental impact on biodiversity.

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"ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार"

शिक्षणमहर्षी डॉ. बापूजी साळुंखे

श्री स्वामी विवेकानंद शिक्षण संस्था, कोल्हापूर

श्रीमती मीनलबेन महेता कॉलेज, (आर्ट्स, कॉमर्स अॅण्ड सायन्स) पाचगणी,
ता. महाबळेश्वर, जि. सातारा. ४१२८०५

भाषा विभागांच्यावतीने एक दिवसीय राष्ट्रीय चर्चासत्र

"मराठी, हिंदी व इंग्रजी साहित्यातील देशीवाद"

शनिवार दि. २३ सप्टेंबर, २०१७

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Element of Nativism in Leo Tolstoy's The Grain That Was Like an Egg

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Abstract:

"All the great European or American works are, in fact, nativist. That they get a worldwide audience is an appropriate appreciation of one native culture by the others."

- Bhalchandra Nemade

Nativism is the political policy or practice of preserving or reviving an indigenous culture. However, this is currently more commonly described as an anti-immigrant position considering the policy to be one of protecting native interests against those of immigrants. In scholarly studies nativism is a standard technical term.

The present paper tries to analyse old ways of living and the ways of living in globalized world and the reasons of losing happiness and satisfaction in this present world

Leo Tolstoy's short story The Grain That Was Like an Egg depicts the element of nativism. In the process of globalization and fulfill the demand of increasing population, major grains are hybridized which has decreased the longevity of people. People of the past were physically strong and their longevity was also good. Due to hybridisation of various grains, we have lost the long tradition of healthy food. What we had in the past was genuine one. But new changes have crushed our rich past.

Key Words: Nativism, Globalisation Spirituality, Grains, Longevity, Happiness, Contentedness etc.

Introduction:

Online Dictionary defines Nativism as:

> The theory that concepts, mental capacities, and mental structures are innate rather than acquired by learning.
>
> The policy of protecting the interests of native-born or established inhabitants against those of immigrants.

Merriam-Webster.com/Dictionary defines Nativism as:

> A policy of favoring native inhabitants as opposed to immigrants
>
> The revival or perpetuation of an indigenous culture especially in opposition to acculturation

According to Fetzer (2000), opposition to immigration commonly arises in many countries because of issues of national, cultural, and religious identity. The phenomenon has been studied

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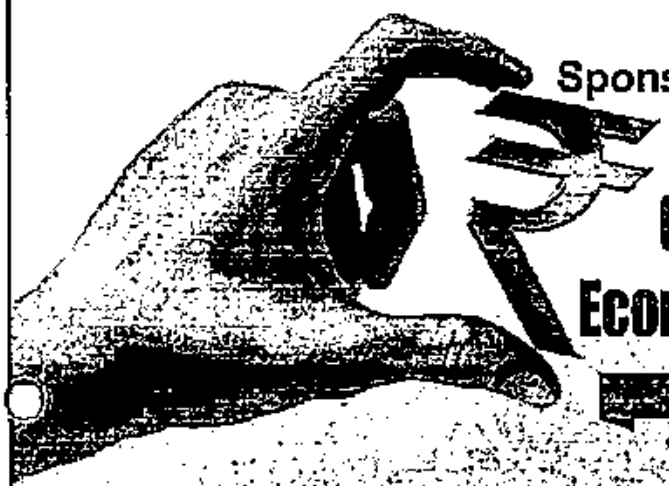

Challenges before Indian Economy in the Globalization Era

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Tasgaon, Tal: Tasgaon, Dist:Sangli

24

ges of price fluctuation of Strawberry in habaleshwar Taluka

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Assistant professor,
Department of Economics,
enalben Mehta College Panchagani
Mahabaleshwar Dist -- Satara

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ion:

ne of the most favoured fruits in the strawberry. It is delicious small fruit reciated mainly for its characteristics d bright colour and it is consumed in ntities whether fresh or in predated s important commodity of food and it or manufacturing of sweets, jams, scuit, and ice cream. Post handling g is also required. The production of meets only a small percentage of this mation. In response to demand ry acreage has been steadily increasing ut the stat in recent years.

nt of the problem:

trawberry is one of the most important ural commodities but its demand is elastic while supply is highly elastic, any reason such as irrigation problems, economic restrictions and marketing s. The price of strawberry fluctuates so resulting in losses to strawberry ors and requires them to give up its on. An attempt is therefore made in the study to provide useful solution to the n. It is need to solve problems of ry cultivation in India as well as to study under strawberry cultivation

Objective of study:

1. To study the production and productivity of strawberry cultivation.
2. To study the price fluctuations of strawberry.

Research Methodology:

The entire research paper base on the primary and secondary data. The Primary data have collected by using the structured questionnaires interviews and non-participative observation. The present researcher proposes to use the cluster sampling to collect the required data. The informal discussion with the agriculture field office has also been carried. The secondary data has been collected through reference books, research paper, article etc.

Sampling technique:

Four villages from Mahabaleshwar taluka have been selected for the present study. These villages are Bhilar, Panchgani, Avakali, and Pangari. The researcher has selected ninety two respondents from these villages, on the basis of maximum number of cultivators available in the total number of these villages. The sample has been selected 10% of population on the basis of random sampling method.

Price Analysis of Strawberry:

The strawberry farmers need to maintain the adequate prices of strawberry in order to cover production expenses. The net revenue depends on the market price growers receive for strawberry. In most farming ventures growers need better care of crops for high quality of fruits. The local market also determines the maximum price growers can receive for strawberry. Following table shows price of fresh strawberry during the year 2013-14 to 2016-17.

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देशीवाद और उसके तत्त्व

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पूर्व अधिष्टाता, कला संकाय,
शिवाजी विश्वविद्यालय, कोल्हापुर
एवं अध्यक्ष, हिंदी विभाग,
श्रीमती मीनलबेन महेता कॉलेज, पाचगणी

प्रस्तावना:–

साठोत्तरी साहित्य और समीक्षा क क्षेत्र में हमें प्रयोगधर्मिता दिखाई देती है। इस काल में विश्व–साहित्य में जो वाद और जो जो विचार प्रणालियाँ प्रभावी थीं, उनका प्रभाव भारतीय साहित्य और समीक्षा क्षेत्र पर भी दिखाई देता है। इसी प्रभाव के परिणाम स्वरूप भारतीय लेखकों ने एक ओर अपने आपने जीवनानुभवों को साहित्य के माध्यम से अभिव्यक्त किया, तो दुसरी ओर इसी प्रभाव के आधार पर उपलब्ध साहित्य की समीक्षा करने की, कोशिश की। इसी प्रयोगधर्मिता के एक नए आविष्कार के रुप में साहित्य और समीक्षा क्षेत्र में 'देशीयता' या 'देशीवाद' का आगमन हुआ। 'देशीयता' या 'देशीवाद' –

'देशज','देशी', 'देशीयता' और 'देशीवाद' शब्द 'देश' शब्द से बने है। मानक हिंदी कोश के अनुसार 'देश' शब्द का अर्थ है 'कोई विशिष्ट भू–भाग या खंड जिसका प्राकृतिक या कृत्रिम आधारों पर विभाजन हुआ हो तथा जहाँ कुछ विशिष्ट जातियाँ, कुछ विशिष्ट भाषा–भाषी तथा कुछ विशिष्ट परंपराओं और संस्कृतियों वाले लोग रहते है।' [1] इसी कोश के अनुसार 'देशज' शब्द का अर्थ है – ''जो देश में ही उपजा या बना हो।'' जो न तो विदेशी हो और न किसी दूसरी भाषा के शब्द से बना हो। [2]'देशी' शब्द के अर्थ मानक हिंदी कोश में इस प्रकार दिए गये हैं –1 देश संबंधी। जैसे – देशी भाषा 2 किसी व्यक्ति की दृष्टि से स्वयं उसके देश में बनने, रहने या होने वाला। स्वदेशी। जैसे – देशी माल।'[3] इस प्रकार देश, देशज या देशी शब्द तो हिंदी में प्रचलित हैं, पर देशीयता या देशीवाद शब्दों का हिंदी साहित्य जगत् में विशेष प्रचलन नहीं है।

'देशीयता' संकल्पना भारतीय भाषाओं में सर्वप्रथम मराठी के सुप्रसिद्ध ज्ञानपीठ पुरस्कार प्राप्त लेखक भालचंद्र नेमाडे जी ने 1980 में प्रयुक्त की। 'मराठी साहित्य: प्रेरणा और स्वरूप (1950-1975)' विषय पर शिवाजी विश्वविद्यालय, कोल्हापुर मे हुई संगोष्ठी में भालचंद्र नेमाडे जी द्वारा प्रस्तुत 'मराठी उपन्यास में देशीयता' शोध निबंध को हम देशीयता या देशीवाद की चर्चा का आरंभ कह सकते है। उसके बाद नवम्बर 1983 में कस्तुरबाई वालचंद महाविद्यालय, सांगली में आयोजित 'मराठी और कन्नड साहित्य में देशीवाद' संगोष्ठी में नेमाडे जी ने 'देशीवाद' संकल्पना का प्रयोग किया और साहित्य – क्षेत्र में देशीवाद की चर्चा आरंभ हुई। 1995 में आय.आय.टी. कानपुर में 'Deshiwad in Indian literature' विषय पर हुई संगोष्ठी ने इस चर्चा को आगे बढाया।

नेमाडे जी द्वारा प्रस्तुत 'देशीयता' संकल्पना में लेखक और उसकी भूमि का अटूट संबंध माना गया है। लेखक जिस भूमि में पलकर बडा होता है, उस भमि का विशेषकर उस समाज का लेखक के भावविश्व पर काफी परिणाम होता है। उसके जीवनमूल्य उसीसे बनते हैं और उन जीवनमूल्यों से ही उसके साहित्य में देशीयता दिखाई देती है। इन जीवनमूल्यों के बिना कोई भी लेखक अपने साहित्य के माध्यम से समाज के यथार्थ को अंकित नहीं कर सकता। नेमाडे जी कहते हैं – ''मनुष्य या साहित्य अपनी – अपनी भूमि पर ही, अपने– अपने भाषिक समूह में ही मजबूती से खडे रह सकते हैं।'' [4] नेमाडे जी द्वारा प्रस्तुत देशीवाद की संकल्पना उन्होंने उत्तर अमरिका के मानववंशशास्त्री राल्फ लिंटन जी के नेटिविस्टिक मुव्हमेंट निबंध से ली है, ऐसा कुछ विचारक मानते है। वास्तव में नेमाडे जी के देशीवाद की जडें महात्मा ज्योतिबा फुले तथ महात्मा गांधी जी की स्वदेशीयता में दिखाई देती है, नेमाडे जी का देशीवाद संबंधी विचार राल्फ लिंटन से देशीवादसे अलग है। क्योंकि नेमाडे जी देशीयता के संकल्पना में मनुष्य के केंद्र मानकर उसके अस्तित्व एवं अस्मिता को महत्त्वपूर्ण स्थान देते हैं। नेमाडे जी के अनुसार, 'विश्व में कुछ समान तत्त्व दिखाई देते हैं। पर यह समानता भी बिना देशी विशेषताओं के अस्तित्व में नहीं आती और इन देशी विशेषताओं के बिना भिन्न संस्कृति या दो

भिन्न भाषा की साहित्यकृतियों की तुलना संभव नही है।" [5] यहाँ साहित्य के माध्यम से देशी विशेताओं की अभिव्यक्ति नेमाडे जी आवश्यक मानते हैं।

अपनी देशीयता का समर्थन करते हुए नेमाडे जी व्यंग्यात्मक भाषा में कहते हैं, हमें पीने का शुद्ध पानी नही मिलेगा तो चलेगा, पर दूरदर्शन के रंगीन संच पर विश्व की हरी भरी बाते दिखनी चाहिए । दूर– दूर के उत्तमोत्तम खिलाडी बनने योग्य युवक और युवतियों के दूध नही मिलेगा तो चलेगा, पर दिल्ली में 'एशियाड अवश्य होना चाहिए.. .. हमारे बच्चो के मातृभाषा मराठी में बात करना नही आयेगा तो चलेगा, पर उन्हें अंग्रेजी माध्यमों के स्कूल में पढना चाहिए । हमारे विद्वत्जन ज्ञानदेव–तुकाराम का अध्ययन न करे से चलेगा, परंतू इंग्लीश, अमरिका के मामूली लेखकों का गंभीर अध्ययन उन्हें करना चाहिए ।' [6] यहाँ नेमाडे जी किसी की भी परवाह किए बगैर अपनी अच्छी बातें नकारने वालों को फटकारते है। यहाँ उनके देशीयता संबंधी विचार स्पष्ट होते हैं।

भारत में प्राचीन काल से ही 'देशी' शब्द का प्रचलन है। मार्गी और देशी विशेषणों से क्रमश: अभिजन परंपरा और बहुजन परंपरा का उल्लेख किया जाता है। मार्गी व्यापक और उच्चभ्रू परंपरा से संबधित थी, तो देशी लोक–परंपरा से। मार्गी माने मानक और देशी माने बोली अर्थ से ही इन संकल्पनाओं का प्रयोग होता था। भाषा से लेकर अलग अलग कलाविष्कारों तक जो जो लोक परंपरा से संबधित था, वह सब 'देशी' संकल्पना से पहचाना जाता था। इस लिए देशीवाद को बहुजन संस्कृति की मूल्य व्यवस्था भी कहा जा सकता है।

देशीवाद के तत्त्व :–

देशीवाद के उपरोक्त विवेचन के आधार पर देशीवाद के कुछ प्रमुख तत्त्व सामने आते हैं। ये तत्त्व सर्वसंमत होंगे ही, ऐसा नही; पर देशीवाद का अध्ययन करते समय देशीवाद के जो प्रमुख तत्त्व सामने आते हैं, वे इस प्रकार हैं–

1- देशी संस्कृति:–

देशीवादी समीक्षा मूलत: समाजशास्त्रीय हो के कारण उसमें संस्कृति को अनन्य साधारण स्थान है। संस्कृति में लोगों की जीने की पद्धति, रुढि–परंपरा, आचार –विचार, भाषा, कला , साहित्य, त्यौंहार, वेशभूषा आदि बातें समाविष्ट होती हैं। डॉ. अशोक वाघर जी के अनुसार, "प्रत्येक लोक–समूह की एक संस्कृति होती है। लेखक जिस लोक समूह का चित्रण करता है, उस लोक समूह की संस्कृति का चित्रण करना उसे आवश्यक होता है। वैसे 'सभी मनुष्य–जाति एक है' यहाँ आदर्शवाद देशीवाद स्वीकार नही करता।" [7] यहाँ देशीवाद प्रत्येक मानव समूह की अलग संस्कृति होती है, इस बात को स्वीकार करते हुए उस मानव समूह की देशी संस्कृति को महत्त्व देता है।

डॉ. भालचंद्र नेमाडे जी इस संबंध में कहते हैं, "संस्कृति केवल सिर्फ या अचल भौतिक वस्तु नहीं है। बल्कि यह हमेश बदलने वाली और शाश्वत रहने के लिए हमेशा बाहर से स्थूल और सूक्ष्म तत्त्वों का स्वीकार करने वाली महाव्यवस्था होती है। उसकी इस प्रक्रिया को ही हम देशीकरण कहते हैं। [8] नेमाडे जी के अनुसार प्रत्योक जिवंत संस्कृति में बाहर के प्रभाव आत्मसात करने की एक अंगभूत शक्ति होती है और बाहर के प्रभाव आत्मसात करने की प्रक्रिया को ही वे देशीकरण कहते है।

2- लोकभाषा:–

भाषा से माध्यम से ही सांस्कृतिक एवं देशीय परंपराओं का आविष्कार होता है। इसलिए देशीयता या देशीवाद में लोकभाषा महत्त्वापूर्ण होती है। प्रत्येक लेखक को अपनी अपनी देशी भाषा में अभिव्यक्त होना चाहिए ऐसा देशीवाद मानता है। देशी भषा में जितने प्रभवशाली ढंग से मनुष्य अपने विचारों और भावनाओं की अभिव्यक्ति कर सकता है, उतने प्रभावशाली ढंग से परकीय भाषा में वह संभव नहीं है। संस्कृत भाषा समझने में कठिण होने के कारण ही गौतम बुद्ध ने लोकभाषा का प्रयोग किया। कुछ कालोंपरांत लोकभाषा प्रयोग की यह परंपरा खंडित हुई। महाराष्ट्र में पेशवा काल में ब्राहाणों का वर्चस्व बढने से फिर से संस्कृत का प्रभाव बढा। तब महात्मा ज्योतिबा फुले जी ने ब्राहाणी भाषा के खिलाफ आवाज उठाते हुए लोकभाषा का स्वीकार किया। उनकी यह कृति देशी परंपरा से ही संबंधित है। जातियों की और बोलियों की संवेदनशिलता से निर्माण हुआ गामीण और दलित साहित्य देशीवाद की ही उपज है।

3- सत्य :–

देशीवाद हमेशा सत्य का पुरस्कार करता है। सत्य ही मानवी जीवन का शाश्वत तत्त्व है। प्राचीन काल से ही साहित्य में इस तत्त्व का बोलबाला है। महाभारत और रामायण में हमेशा सत्य की विजय होते हुए दिखया है। गौतम बुद्ध ने ही अपने विचारों में सत्य को महत्त्व दिया है। सभी संतों ने भी अपने साहित्य के माध्यम से सत्य का पुरस्कार किया है। म. ज्योतिबा फुले जी ने सार्वजनिक सत्य धर्म की स्थापना करते हुए सत्य का महत्त्व विशद किया है। म. गांधी जी ने सत्य और अहिंसा का स्वीकार करते हुए सत्याग्रह के बल पर देश को स्वतंत्रता दिलाने में महत्त्वपूर्ण योगदान दिया। डॉ. बाबासाहब आंबेडकरनेही सत्य तत्त्व का आजीवन स्वीकार किया। विश्व स्तर पर भी हम देख सकते है कि वही साहित्य शाश्वत साहित्य की संज्ञा के काबिल होता है, जिस साहित्य में सत्य तत्त्व होता है।

लेखकों को अपनी साहित्यकृतियों के माध्यम से हमेशा सत्य तत्त्व का प्रतिपादन करना चाहिए ऐसा देशीवाद में अभिप्रेत है। सत्य तत्त्व के अभाव मे साहित्य उथल और सस्ता बन जात है। ऐसे साहित्य का कोई साहित्यिक मूल्य नही होता । इसलिए देशीवाद में सत्य का अनन्य साधारण महत्त्व होता है। सत्य तत्त्व के कारण ही देशी साहित्य विश्व साहित्य की संज्ञा के काबिल बनता है।

4- यथार्थ चित्रण :–

देशीवाद में यथार्थ चित्रण महत्त्वपूण माना जाता है। जीवन जीते समय जिन अनुभवों से हम गुजरते हैं, उन पर कोई भी कलात्मक आवरण चढाए बिना जैसे हमें अनुभूति हुई, वैसे ही उसकी अभिव्यक्ति करना ही साहित्य में यथार्थ चित्रण कहा जाता है। यथार्थ चित्रण करते समय लेखक का साहित्य और समाज की ओर देखने का दृष्टिकोन भी महत्त्वापूर्ण होता है। लेखक जितना अपने अनुभवों से वफादार और नैतिकता को मानने वाला होगा, उतना ही उसका यथार्थ वस्तुनिष्ठ रीति से अभिव्यक्त होगा। साहित्य को सामाजिक दस्तावेज मानने वाले लेखक को ही यथार्थता सम्यक ओर वस्तुनिष्ठ आकलन अभिव्यक्त करना संभव होता है। इससे यथार्थ तत्त्व का साहित्य मे जो महत्त्व है, वह अधोरेखित होता है।

5- आधुनिकता :–

आधुनिकता यह समाजाभिमुख संकल्पना है। परंपरावादी दृष्टिकोन के विरूद्ध जीवन विषयक दृष्टिकोन को हम आधुनिकता कह सकते हैं। परंपरा को नकारते हुए मानव हित से संबंधित कुछ नया करने की सोच आधुनिक है। आधुनिकता संस्कृति सापेक्ष होती है। भारतीय संस्कृति ने बाहर से आयी अनेक संस्कृतियों के प्रभाव को आत्मसात करते हुए उनका देशीकरण किया है। आज हमारे जीवन मे उपलब्ध सुख–सुविधा देने वाले सभी साधन, शिक्षा, सिनेमा, रेडियों, टेलीव्हिजन, दूरध्वनि सेवा आदि सब आधुनिक है। पर आधुनिकता के नाम पर पाश्चात्य विचारों को अपनाते समय हमें विवेक से काम लेना होगा। इन आधुनिक संसाधनों को भारतीयता का – देशीयता का संस्पर्श होना आवश्यक है।

आधुनिकता के कारणही हमारे साहित्य में व्यक्तिवाद और विवेकनिष्ठा जैसे मूल्य आए । बहुजनों की साहित्यिक परंपरा का निर्माण होने में मदत हुई। बहुजनों के साहित्य में विवेकनिष्ठ भावना से जो लेखन हुआ, उसमें हमारी संस्कृति, हमारी परंपरा, हमारी भाषा, हमारे समाज की यथार्थ स्थिति साहित्य में आई। इसलिए आधुनिकता देशीवाद का महत्त्वपूर्ण तत्त्व माना जाता है।

6- सामाजिकता:–

देशीवाद में सामाजिकता को भी विशेष महत्त्व है। देशीवादी में सामाजिकता को लेखक सापेक्ष माना गया है। साहित्य और समाज का अन्योन्याश्रित संबंध है। साहित्य को समाज का दर्पण कहा गया है। साहित्यिक समाज मे रहकर ही अपने साहित्य में उसका चित्रण करता है। आम आदमी पर जैसे कुछ सामाजिक जिम्मेदारियाँ होती हैं, वैसे वे साहित्यिक पर भी होती है। इन जिम्मेदारियों को वह नजरअंदाज नही कर सकता। बल्कि इन जिम्मेदारियों का स्वीकार करते हुए लेखलन करने में ही उसकी सामाजिकता है। समाज को छेडकर लेखक की कल्पना भी नही की जा सकती। हॉ, लेख को लेखन–स्वतंत्रता होती हैं, लेकिन उसका उपयोग लेखक से समाज हित के लिए करना चाहिए । लेखक

को, वह जिस समाज में पलकर बडा हुआ, उसे विना भूले लेखन करना चाहिए । समाज के प्रति अपनी जिम्मेदरियों को निभाते हुए लेखन करना देशीवाद मे अभिप्रेत है।

7- नवनैतिकता –

नवनैतिकता को देशीवाद का अपत्य माना जाता है। सामाजिक सत्य को ढूँढते समय उसका प्रत्यक्ष में अस्तित्व है या नही, यह देखना भी जरुरी होता है। नेमाडे जी के अनुसार नैतिकता माने वैयक्तिक मूल्यनिष्ठा। उनके मतानुसार नैतिकता का स्वरूप स्थितिशील, तरल और पूर्णत:वैयक्तिक होता है। लेखक अपने जीवनानुभवों को साहित्य के माध्यम से अभिव्यक्त करता है। लेखक की साहित्यकृति में लेखक द्वारा स्वीकृत नैतिकता के दर्शन होते है। इस नैतिकता के साथ उसे प्रामाणिक रहन पडता है। देशीवाद ये मानता है कि कोई सामाजिक कृति लेखक की नैतिकता के विरुद्ध हो, तो उसका विरोध करना नवनैतिक लेखक का कर्तव्य है। देशीवादी लेखक किसी भी परिस्थिति में अपनी वैयक्तिक मूल्यनिष्ठा को छोड नही सकता। समाज के लिए सही, उचित हितकारक क्या है, इसकी पहचान देशीवादी लेखक को होनी चाहिए और उसी का अंकन उसे अपने साहित्य के माध्यम से करना चाहिए ऐसा देशीवाद का आग्रह है।

समारोप:–

उपरोक्त विवेचन के आधार पर हम कह सकते है कि आज साहित्य में जो ग्रामीण, दलित, आदिवासी, जनवादी, स्त्रीवादी जैसे अनेक साहित्य प्रवाह दिखाई देते हैं, उनका और उनके जैसे देशी परंपरा से युक्त साहित्य का मूल्यांकन और पुनर्मूल्यांकन करने के लिए देशीवाद का एक साहित्यिक – सिद्धांत के रुप मे अनन्यसाधारण महत्त्व है। भारतीय साहित्य पर पाश्चात्य विचार–परंपरा का जो बुरा प्रभाव दिखाई देता है, उससे हमारे साहित्य और समीक्षा को मुक्त करने का अवसर देशीवाद के माध्यम से हमारे सामने आया है। साहित्य का संस्कृतिसापेक्ष और गुणवत्ताधारित मूल्यांकन करने के एक साधन रुप में भी हम देशीवाद का स्वीकार कर सकते हैं। भारतीय समीक्षा मुख्यत: पाश्चात्य समीक्षा के मापदंडों पर आधारित है। वास्तव में हमारे साहित्य निर्माण के निकष और समीक्षा के मापदंड हमें ही तय करने चाहिए, इस भूमिका से भालचंद्र नेमाडे जी ने देशीवाद का सिद्धांत हमारे सामने रखा है। देशीवादी समीक्षा पद्धति नई होने के साथ साथ मानव की मानवता और उसकी संस्कृति को भी रेखांकित करती है। इसलिए साहित्य – समीक्षा के क्षेत्र में देशीवादी समीक्षा को विशेष महत्त्व है।

संदर्भ ग्रंथ सूची :

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Allelopathic Influence of *Celosia argentea* L. on activity of α-Amylase during Seed Germination of *Cyamopsis tetragonoloba* (L.) Taub

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ABSTRACT

Celosia argentia L. is dominant weed reported in crop fields of Islampur of Sangli district of Maharashtra, India. It has been scrutinized for its allelopathic potentiality against guar (*Cyamopsis tetragonoloba* L. Taub.). The laboratory experiments were conducted to assess activity of α-amylase during seed germination of guar after treating different concentrations (5, 20, 40, 60 and 80%) of stem, leaves and inflorescence (flower) aqueous extracts separately. There is positively correlation between the aqueous leachate and activity of α-amylase. The activity increased in germinating seeds of guar after treatment of aqueous leachates of all plant parts. The treatment of 40 to 80% inflorescence, leaf and root aqueous extract recorded doubled α-amylase activity as compared to control in germinating seeds. The activity of α-amylase was more pronounced in leaf leachate treated seedlings as compared to other leachate treatments. It indicated that allelochemicals are more in leaf than other plant parts. This study indicates that some allelochemicals are present in aqueous extract of C. *argentea* and regulated the activity of enzyme α-amylase.

KEY WORDS: Allelochemicals, α-amylase, *Cyamopsis tetragonoloba* (L.) Taub. *Celosia argentea* L. etc

INTRODUCTION:

Weeds are a unwanted unplanted redundant plant that affect the growth of main crop in field through releasing chemicals called as allelochemicals (Batish *et al.*, 2007). They often affect growth dynamics crop (Kadiolgue *et al.*, 2005) and metabolic functions including photosynthesis, respiration, mineral nutrition and such others (Saxena *et al.*, 2004) through allelopathic mechanism (Benyas *et al.*, 2010). Allelopathy functions either negatively or positive interaction between the plants, results in to stimulatory or inhibitory actions on neighboring plants.

The weed, *Celosia argentea* L. is an exotic flowering herb belonging to Amaranthaceae predominately interfere in crop field of legumes (Inamdar and Kamble,2009). Guar (*Cyamopsis tetragonoloba* (L.) Taub., family Leguminosae, sub family Fabaceae), multipurpose crop and grown in India since ancient time for its green pods, is used as vegetable, and grains as pulse and green plants as fodder. India is first rank producer

of guar comprise 83% of world production (NRAA, 2014) but its field is affecting by weed *Celosia argentea* L. in western part of Maharashtra, India.

In this connection the attempt has made to study the influence of aqueous extracts plant parts of *Celosia argentea* L. on this activity of enzyme α-amylase, to evaluate the allelopathic effect of *Celosia argentea* L. on carbohydrate metabolism during seed germination of guar. This attempt signified for understanding weed crops interactions and open new area for further research on this background.

MATERIALS AND METHODS:

Preparation of aqueous leaf extracts

The weed, *C. argentea* was collected from guar fields of Islampur, Sangli district of Maharashtra, India [17° 15' - 18° 01' N latitude and 74° 12' - 74° 74' E longitude] and washed with tap water to remove soil particles. The plant parts such as leaves, roots and inflorescence were separated and shade dried for 10 days. Dried parts were powered with the help of grinder and stored in polythene bag. The extract were prepared by taking 10 gm of fine powder of each part and poured in 100ml distilled water as pure extract, stock solution. From this extract, the different (5, 20, 40, 80%) concentrations were prepared for treatments while distilled water used as control (0%). The extract was filtered after 24h through a double layered muslin cloth; the filtrate was used as leachates, for further analysis.

Seed treatment with aqueous Leachates:

Healthy uniform seeds of guar variety Navbahar were selected and procured from authorized shop of Shetkari Sahakari Sangh Pvt. Ltd, Kolhapur. The seeds were surface sterilized with 1% sodium hypo-chloride for 10 min, then rinsed with distilled water for several times to remove excess of chemical. Then surface sterilized seeds were soaked for treatments in 20 to 80% concentrations of plant extracts for 6h. The seeds soaked in distilled water were used as a control. These treated seeds were placed in petriplate ((9.0 cm diameter) containing wet blotting paper and covered with a lid. At each concentration and incubation period, triplicate sets were arranged and placed in the laboratory under normal temperature for germination, for 72h. The analysis of carbohydrates and bioassay for enzyme amylase was carried out after 72h of germination.

Bioassay for enzyme Alpha amylase was carried out through a modified method of Katsumi and Fukuhara (1969).

Statistical analysis

The analysis was carried out in three replicates for all determinations and the mean were calculated.

RESULTS AND DISCUSSION:

Qualitative and quantitative changes were involved in several metabolic pathways during seed germination and seedling growth (Kengar *et al.*, 2014). Seed germination is linked with degradation and mobilization of food accumulated during seed maturation (Borisjuk *et al.*, 2004 & Penfield *et al.*, 2005). These carbohydrates are utilizes by developing seedling for the synthesis of various metabolic products. Carbohydrate storage in the form of starch and oligosaccharides were hydrolyzed and increased the sugar levels due to metabolic changes in legume seeds during germination process (Urbano *et al.*, 2005). Pawar and Chavan (2007) reported the degradation of starch might be due to the enhanced action of á-amylase during the process of germination, which hydrolyzes the starch into simple carbohydrate. The entry of allelochemicals in plants may result in changes in growth with fluctuation in carbohydrate contents (Roushan Islam, 2016) and affect the various metabolic activities and growth components in plants (Mali and Kanade, 2004). Gulzar and Siddiqui, (2014) found that total carbohydrate contain was increased in allelopathic treated plants. The result of present investigation showed that, the activity of amylase in guar after seed treatment of *Celosia argentea* L. plant parts leachates.

Activity of enzyme α-Amylase [E.C. 3.2.1.1]:-

The activity of amylase enzyme recorded after treatment of aqueous extracts of *C. argentea* L. on germinating seeds of guar in table. It was noticed the elevated activity of amylase after treatment of leachates of *C. argentea* L. The treatment of 40 to 80% inflorescence, leaf and root aqueous leachate recorded doubled amylase activity as compared to control in germinating seeds. The 5 to 80% inflorescence aqueous leachates treatment recorded 0.89, 1.07, 1.43, 1.64 and 1.97µg amylose hydrolysed $min^{-1}g^{-1}$ respectively, Leaf leachates showed 1.12, 130, 1,81, 2.10 and 2.34µg amylose hydrolysed $min^{-1}g^{-1}$ where as root leachates treatment reported elevated values of amylase as 0.95, 0.96, 1.12, 1.32 and 1.49µg amylose hydrolysed $min^{-1}g^{-1}$ respective to treatment. The leaf leachates treatment influences more positively on activity of amylase as compared to treatment of inflorescence and root aqueous leachates. It indicated as allelochemicals are more in leaf than other plant parts of *C. argentea* L.

Amylase is an important hydrolytic enzyme synthesized during seed germination in plants. This enzyme is abundant in the germinating seeds and catalyses a random hydrolysis of α-1, 4 glucosidic linkage in the starch component (Kengar *et al.*, 2014). Seed development is closely associated with seed metabolism and transport processes (Weber *et al.*, 1998). It is involved in the mobilization of starch reserves which are transported as sugars and utilized by the growing embryo (Ernst David Floyd, 1971). The enzymes most commonly endorsed with the initial attack on starch granules are α-amylase and β-amylase, responsible for breakdown and initiating the mobilization of starch in germinating seeds (Trethewey & Smith, 2000).

Ramakrishnan *et. al.*, (2014) reported that the leaf leachates of *Gmelina arborea* on red gram, green gram, black gram, and chickpea they studied allelochemicals inhibited the expression and activity of the enzymes required for efficient germination. Allelopathic plants water extract application at low concentration improved the performance of maize which might be attributed to the presence of various secondary metabolic (Casimiro *et.al.*, 2001). Pawar and Chavan (2007) studied the effect of leaf leachates of *Eucalyptus globulus*, *Moringa oleifera*, *Parthenium hysterophorus* and *Glycine max* on seedlings of *Sorghum bicolor*, recorded decreased activity of α-amylase and invertase in *Sorghum bicolor* . The similar results were reported by Madane and Patil (2017), they observed increased α-amylase activity in *Cajanus cajan* and *Cicer arietinum* seeds during germination after treatment of *E. odoratum* at lower concentrations.

In present investigation, there is positively correlation between the aqueous leachate concentrations of *C. argentea* L. and activity of α-amylase in guar. The activity increased in germinating seeds of guar after treatment of aqueous leachates of all plant parts however the treatment of 40 to 80% inflorescence, leaf and root aqueous extract recorded doubled amylase activity as compared to control in germinating seeds. The activity of α-amylase was more pronounced in leaf leachate treated seedlings as compared to inflorescence and root leachate treatments. This elevation in activity of α-amylase is due to allelochemicals present in plant parts (Madane and Patil, 2017), indicated that allelochemicals are more in leaf than other plant parts. This study indicates that some allelochemicals are present in aqueous extract of *C. argentea* L. and it worked as enzyme amylase regulators.

CONCLUSION:

The present study indicated that the amylase activity in guar was stimulated in the all selected concentrations of aqueous leaf leachates of C. *argentea* with in germinating seeds of guar. This increased activity of α-amylase is due to allelochemicals present in *C. argentea* (Narwal, 1994). It needs further screening of allelochemicals and their characterization for detailed study. Therefore, present investigation recommended that, some eco-friendly preventing measures should be taken to minimize the deleterious effects of *C. argentea* L. at the time of growing crops.

Table 1: Effect of aqueous extract of *C. argentea* on Carbohydrate content and activity of alpha amylase in germinating seeds of Guar

All values are mean of three determinations
Values are expressed in µg amylose hydrolysed $min^{-1}g^{-1}$ fresh weight.

	Activity of Alpha amylase in germinating seeds of Guar * (µg amylose hydrolysed $min^{-1}g^{-1}$)		
Control	0.83		
Aqueous Leachates (%) of *C. argentea* L.	Inflorescence	Leaf	Root
5%	0.89	1.12	0.95
20%	1.07	1.30	0.96
40%	1.43	1.81	1.12
60%	1.64	2.10	1.32
80%	1.97	2.34	1.49

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Allelopathic Potentiality of Celosia argentea L. on Carbohydrates Content during Seed Germination of Guar

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Abstract: *Celosia argentea* L. is dominant alien weed reported from crop field of Islampur in Walwa taluka of Sangli district of Maharashtra, India. It has been scrutinized for its allelopathic potentiality against guar. The laboratory experiments were conducted to assess carbohydrates during seed germination of guar after treating different concentrations (5, 20, 40, 60 and 80%) of stem, leaves and inflorescence (flower) aqueous extracts separately. It is reported that the 5% inflorescence and root leachates of *C. argentea* showed slightly increased total sugar (0.781 and 0.748g.100g^{-1} respectively) in guar where as all other treatments ranging from 20 to 80% aqueous leachates of inflorescence and root act detrimentally. It is noticed that the 5% inflorescence leachate responsible for increase in reducing sugar (0.198g.100g^{-1}) and starch (1.262g.100g^{-1}) in guar. Generally, all treatments caused detrimental effect on carbohydrate content, indicated that allelochemicals are present in plant parts of *C. argentea*.

Keywords: Allelochemicals, Amylase, Carbohydrate, *Cyamopsis tetragonoloba*, *Celosia argentea* L., Sugar, Starch.

I. INTRODUCTION

Weeds are a mostly belligerent redundant plant that hampers the growth of main crop through releasing chemical substances, called as allelochemicals (Batish *et al.*, 2007). They often affect growth dynamics crop (Kadioglue *et al.*, 2005). The allelochmicals have ability to affect on metabolic functions including photosynthesis, respiration, mineral nutrition and such others (Saxena *et al.*, 2004) through allelopathic mechanism (Benyas *et al.*, 2010). Allelopathy signifies either negatively or positive interaction between the plants, results in to inhibitory or stimulatory effect on adjacent plants.

The weed, *Celosia argentea* L. is an exotic flowering herb belonging to Amaranthaceae predominately interfere in crop field of legumes (Inamdar and Kamble, 2009). Guar (*Cyamopsis tetragonoloba* (L.) Taub., family Leguminosae, sub family Fabaceae), multipurpose crop and survive under dry conditions. It has been growing since ancient time in India for its green pods (as vegetable, grains (as pulse), and green plants (as fodder). India is first rank producer of guar comprise 83% of world production (NRAA, 2014) but its field is affected by weed *C. argentea L.* in western part of Maharashtra, India.

In this connection the attempt has made to study the influence of aqueous extracts plant parts of *C. argentea L.* on Carbohydrate content viz. reducing sugar, total sugar, starch, and total Carbohydrate of Guar. In addition to this activity of enzyme amylase was also studied. Therefore the main aim of this study was to evaluate the allelopathic effect of *C. argentea* on carbohydrate metabolism during seed germination of guar. This attempt signified for understanding weed crops interactions and open new area for further research on this background.

II. MATERIALS AND METHODS

Preparation of aqueous leaf extracts

The weed, *C. argentea* was collected from guar fields of Islampur, Sangli district of Maharashtra, India [17° 15' - 18° 01' N latitude and 74° 12' - 74° 74' E longitude] and washed with tap water to remove soil particles. The plant parts such as leaves, roots and inflorescence were separated and shade dried for 10 days. Dried parts were powered with the help of grinder and stored in polythene bag. The extract were prepared by taking 10 gm of fine powder of each part and poured in 100ml distilled water as pure extract, stock solution. From this extract, the different (5, 20, 40, 80%) concentrations were prepared for treatments while distilled water used as control (0%). The extract was filtered after 24h through a double layered muslin cloth; the filtrate was used as leachates, for further analysis.

Seed treatment with aqueous Leachates:

Healthy uniform seeds of guar variety Navbahar were selected and procured from authorized shop of Shetkari Sahakari Sangh Pvt. Ltd, Kolhapur. The seeds were surface sterilized with 1% sodium hypo-chloride for 10 min, then rinsed with distilled water for several times to remove excess of chemical. Then surface sterilized seeds were soaked for treatments in 20 to 80% concentrations of plant extracts for 6h. The seeds soaked in distilled water were used as a control. These treated seeds were placed in petriplate ((9.0 cm diameter) containing wet blotting paper and covered with a lid. At each concentration and incubation period, triplicate sets were arranged and placed in the laboratory under normal temperature for germination, for 72h. The analysis of carbohydrates and bioassay for enzyme amylase was carried out after 72h of germination. Total soluble sugar and starch content was estimated according to the method given by Nelson (1944).

Statistical analysis

The analysis was carried out in three replicates for all determinations and the mean were calculated.

III. RESULTS AND DISCUSSION

Qualitative and quantitative changes were involved in several metabolic pathways during seed germination and seedling growth (Kengar *et al.*, 2014). Seed germination is linked with degradation and mobilization of food accumulated during seed maturation (Borisjuk *et al.*, 2004 & Penfield *et al.*, 2005). These carbohydrates are utilizes by developing seedling for the synthesis of various metabolic products. The entry of allelochemicals in plants may result in changes in growth with fluctuation in carbohydrate contents (Roushan Islam, 2016) and affect the various metabolic activities and growth components in plants (Mali and Kanade, 2004). Hence the carbohydrate contents viz. reducing sugar, total sugar, starch and total carbohydrates were studied under influence of aqueous extracts of *C. argentea* on guar seed during germination.

1. Total sugar-

Sugar is the primary photosynthetic product, forms the basic building blocks for all other chemical constituents of the plant. The growth and development of plants depend upon the availability of carbohydrate. Sugar is main source of food for plant cells broken down chemically by respiration to supply energy for all plant functions. The constraints like nutrient availability, water supply and carbon dioxide, temperature, sunlight, and the presence of toxic substances are influencing the rate of photosynthesis (Sances *et al.*, 1982). In concern with this, the effect of aqueous leachates of *C. argentea* on total sugar of guar is studied and results are depicted in Table 1. It is reported that the 5% inflorescence and root leachates of *C. argentea* showed slightly high total sugar (0.781 and 0.748g.100g^{-1} respectively) in guar where as all treatments ranging from 20 to 80% aqueous leachates of inflorescence and root act detrimentally on total sugar in germinating seeds of guar. However the total sugar in germinating seeds of guar was decreased after treatment of leaf and root

aqueous extract of *C. argentea*. Generally the 40 to 80% treatment act much detrimentally on total sugar in germinating seeds of guar. Similar results were reported by Pawar and Rawal (2014) in chickpea seeds with increased concentrations of petal leachates of *Delonix regia*. However, Das *et al.* (2012) have also reported that reduction in total soluble sugar contain in chickpea seedlings with the treatment of 100% (v/v) leaf leachates of *A. auriculiformis, A. occidentale, A. lebbek, E. citridora, E. officinalis, S. robusta*.

In present investigation, the total sugar content was decreased with increasing concentrations of aqueous leachates of *C. argentea* suggesting that the leachates stimulated metabolic enzymes and inhibited the functioning of the enzymes involved in photosynthetic carbon reduction (PCR) cycle, such as Rubisco,3-PGA kinase, NADP, NAD-Glyceraldehyde-3-P-dehydrogenase, and aldolase.

2. Reducing sugar –

The α-amylases are found virtually in all living cells, and bring conversion of the starch molecule into the reducing sugars through cleave of α -D-(1- 4) linkages. Glucose and fructose are reducing sugars used to generate energy for seedling growth. The reducing sugar content of the seeds during germination did not exhibit a steady pattern due to oil and protein contents. The conversion of free fatty acids to sugars and, the conversion of soluble sugars to reducing sugars take place during seed germination. It is also possible that insoluble sugars are also converted to soluble and reducing sugars (To J.P.C *et al.*, 2002). The study of reducing sugar under the allelopathic aspects of *C argentea* on guar during seed germination is main concern. Therefore the effect of aqueous leachates of *C. argentea* on reducing sugar of guar is studied and depicted in Table 1. It is noticed that the 5% inflorescence leachate of *C. argentea* responsible for increase in reducing sugar(0.198g.100g^{-1}) in guar where as all treatment ranging from 20 to 80% aqueous leachate of inflorescence act detrimentally on reducing sugar in germinating seeds of guar. The reducing sugar in germinating seeds of guar was tremendously decreased after treatment of leaf and root aqueous leachate of *C. argentea*. Generally the 40 to 80% treatment act much detrimentally on reducing sugar in germinating seeds of guar. Our study on allelopathic effect of *C. argentea* on reducing sugar content of guar is pioneering in the field of allelopathy.

3. Starch -

The starch is principal storage carbohydrate present in plants in the form of polysaccharide, composed of two polymers, amylose and amylopectin. Both amylose and amylopectin synthesis begins with synthesis of ADP-glucose from glucose-1-phosphate and ATP by ADP-glucose pyrophosphorylase with liberation of pyrophosphate and starch synthase catalyzes the formation of an α-1, 4 linkage. Starch is breakdown through enzymes viz. α-amylase, β-amylase, α-glucosidase, starch phosphorylase, and α-dextrin 6-glucanohydrolase (debranching enzyme). During seed germination, it is hydrolyzed to glucose and further metabolized by glycolysis, the TCA cycle, and the electron transport chain; major energy source for the germinating embryo. The breakdown of starch to readily utilizable sugar under amylase activity is essential for the growth of seedling (Sengupta *et al.*, 1988). During early seedling growth, starch mobilized from the endosperm to the embryo and as a result, the starch content of the endosperm decreased steadily and the starch content of the embryo increased during the first few days of seedling growth (Tonguc *et al.*, 2012). Under this background, the allelopathic effect of C argentea on starch content of guar is studied and results are described below.

In present investigation, the effect of aqueous extract of *C. argentea* on starch of guar is depicted in Table 1. It has been recorded the starch in germinating seeds of guar as 1.361, 0.690, 0.580, 0.462 and 0.292g.100g^{-1} after treatment of 5, 20, 40, 80% aqueous inflorescence leachate of *C. argentea*. From this values, the 5% aqueous extract of inflorescence of *C. argentea* treatment showed

increased starch content as compared control (1.262 g.100g^{-1}), whereas other treatments act detrimental on starch. The effect of aqueous leaf leachate of *C. argentea* in germinating seeds of guar showed increased starch content after treatment of all its concentrations except 80% aqueous leaf leachate treatment as compared to control(1.262g.100g^{-1}). The starch content in germinating seeds of guar was recorded as 1.584, 1.456, 1.451, 1.268 and 1.268 g.100g^{-1} at the treatment of 5, 20, 40, 80% aqueous leaf leachate of *C. argentea*. However the effect of 5 to 80% treatment of aqueous root extract of *C. argentea* on starch content in of germinating seeds of guar were recorded as 1.284, 1.268, 1.263, 1.110 and 1.013g.100g^{-1}.

With the agreements to our results, Ghayal *et.al* 2013, reported that at lower concentration treatments with *Synedrella* leaf leachates there was significantly less reduction in starch content of tomato and brinjal seedlings, as compare to controls. However, starch content increased with higher concentrations of *Synedrella* leaf leachates. Gulzar and Siddiqui, (2014) found that total carbohydrate contain was increased in allelopathic treated plants. The result of present investigation showed that, the amount of starch and total sugar disturbed after seed treatment of *Celosia argentea* leaf extracts.

IV. CONCLUSION

The present study indicated that the carbohydrate content in germinating seeds of guar was stimulated only in 5% aqueous leaf extract of *C. argentea* with 6h seed soaking treatment. However other concentrations inhibited the carbohydrates, it is due to allelochemicals present in *C. argentea* (Narwal, 1994). It needs further screening of allelochemicals and their characterization for detailed study. Therefore, present investigation recommended that, some eco-friendly preventing measures should be taken to minimize the deleterious effects of *C. argentea* at the time of growing crops.

Table 1: Effect of aqueous extract of *C. argentea* on carbohydrate content and activity of amylase in germinating seeds of Guar

	Treatments	Reducing Sugar*	Total Sugar*	Starch*
	Control	0.181	0.712	1.262
Inflorescence Leachates	5%	0.198	0.781	1.361
	20%	0.145	0.572	0.690
	40%	0.115	0.520	0.580
	60%	0.100	0.325	0.462
	80%	0.930	0.278	0.252
Leaf leachates	5%	0.143	0.460	1.584
	20%	0.125	0.260	1.456
	40%	0.125	0.173	1.451
	60%	0.110	0.125	1.268
	80%	0.100	0.071	1.047
Root leachates	5%	0.180	0.748	1.284
	20%	0.179	0.700	1.263
	40%	0.170	0.540	1.251
	60%	0.162	0.431	1.110
	80%	0.132	0.420	1.013

*values are expressed in g.100g^{-1} fresh weight.

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Separation of Gadolinium(III) by Solvent Extraction Using N-*n*-Octylaniline as an Extractant

Authors: Kokare, B. N.; Kamble, G. S.; Sanadi, K. R.; Kamble, R. S.; Anuse, M. A.
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The paper embodies extraction behavior of gadolinium(III) from succinate media in a xylene solution of N-*n*-octylaniline. The effect of some important variables like pH, nature of solvent, equilibration time, concentration of weak organic acids and extractant has been investigated. Slope analysis of experimental results indicated that, the main extracted species are, $[RR'NH_2^+ Gd(Succinate)_2^-]_{(org)}$. The influence of several diverse ions is also discussed. The proposed method has been applied for the separation of binary and synthetic mixtures.

Keywords: GADOLINIUM(III); N-N-OCTYLANILINE; SOLVENT EXTRACTION; SUCCINATE; SYNTHETIC MIXTURE
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"ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार"

शिक्षणमहर्षी डॉ. बापूजी साळुंखे

श्री स्वामी विवेकानंद शिक्षण संस्था, कोल्हापूर

श्रीमती मीनलबेन महेता कॉलेज, (आर्ट्स, कॉमर्स अॅन्ड सायन्स) पाचगणी,
ता. महाबळेश्वर, जि. सातारा. ४१२८०५

भाषा विभागांच्यावतीने एक दिवसीय राष्ट्रीय चर्चासत्र

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अध्यक्ष

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राष्ट्रसंत तुकडोजी महाराज यांचे देशीवादी मूल्यविचार

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१. प्रास्ताविक :

मराठी साहित्यात देशीवादी विचार हे महानुभाव, संत, पंडिती, शाहीरी साहित्यात तसेच स्वातंत्र्यपूर्व काळातही अनेक साहित्यिकांनी आपल्या साहित्यातून मांडले. अनेक समाजसुधारकांनी, संतानी भाषण, कीर्तन, प्रवचन, भारूडे आदी माध्यमांतून हे देशीवादी विचार समाजापर्यंत पोहचविले. परंतु मराठी साहित्यात देशीवादाचा नव्याने विचार व चर्चा भालचंद्र नेमाडेंच्या पुढाकाराने १९८० च्या दशकात सुरू झाली. आजही देशीवादी विचारातून साहित्यिक, समीक्षक आपापली मते मांडत आहेत. या सर्वांचा विचार करता संतानी मांडलेले जे देशीवादी विचार आहेत. त्यातून विविध मूल्यांची समाजात रूजवणूक होते. याबाबत डॉ. वासुदेव सावंत लिहितात, "गौतम बुध्दांची करूणा, तुकारामादि संताचा इहवाद तसाच मानवतावाद, संत कबिरांचा सर्वधर्मसमभाव, धर्मात्म्यात अंगाने उभा राहणारा म. फुले, आंबेडकरांचा सामाजिक क्रांन्तिवाद, म. गांधींची अहिंसा या मूल्यांनी प्रेरित झालेले साहित्य हेच देशीवादाला अभिप्रेत असलेले साहित्य आहे" [१] संत ज्ञानेश्वर, तुकाराम, नामदेव यांच्याप्रमाणेच राष्ट्रसंत तुकडोजी महाराज यांनीही 'ग्रामगीता' ग्रंथातून तसेच कीर्तन–प्रवचनातून मांडलेले देशीवादी विचार हे समाजात माणुसकी, सर्वधर्मसमभाव, श्रमनिष्ठा, राष्ट्रीय एकात्मता आदी मूल्यांचे महत्व पटवून देतात. संत तुकडोजी महाराज यांनी मूल्याधिष्ठित देशीवादी विचार कसे मांडले आहेत? त्यातून विविध मूल्ये कशी दिसून येतात. याबाबतचा शोध या शोधनिबंधातून घेतला आहे.

२. मराठी संताचे देशीवादी मूल्य विचार :

मराठीत अनेक संतानी देशीवादाचा पुरस्कार केला आहे. भालचंद्र नेमाडे यांच्या मते, "देशी असणे म्हणजे भूमीशी जोडलेले असणे." [२] मराठीतील प्रत्येक संतानी लिहिलेले साहित्य हे संस्कृती, परंपरा, श्रध्दा, आदींशी एकरूप आहे. त्यामुळे ते साहित्य हे सर्वांना आपले वाटते. संत ज्ञानेश्वरांनी 'देशीकार लेणे' म्हणत गीता सर्वांपर्यंत पोहचविली. नामदेवांनी अभंग व कीर्तनातून देशीवादाचा पुरस्कार केला. संत तुकारामांची गाथा तर देशीवादाचे सारच आहे. संत एकनाथांची भारूडेनिर्मिती देशीसाहित्याचा अवतारच आहे. "देशीवादाच्या दृष्टीतून पाहिल्यास मराठी साहित्य हे मराठी भाषिक समाजाने निर्माण केलेल्या कृतीचे असून त्यात मराठी भाषा, संस्कृती मध्यवर्ती असावी हे भान आवश्यक वाटते. लेखक ज्या समाजासाठी तो लिहितो, त्याचा एक नैतिक बांधिलकीचा संबंध असणे देशीवादाला जरूर वाटते" [३] मराठी संतानी देखिल हिच देशीवादाला अपेक्षित असणारी नैतिक बांधिलकी जपत साहित्यलेखन केले. तसेच कीर्तन, प्रवचन,

2017-18

"ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार"

शिक्षणमहर्षी डॉ. बापूजी साळुंखे

श्री स्वामी विवेकानंद शिक्षण संस्था, कोल्हापूर

श्रीमती मीनलबेन महेता कॉलेज, (आर्ट्स, कॉमर्स अॅन्ड सायन्स) पाचगणी,
ता. महाबळेश्वर, जि. सातारा. ४१२८०५

भाषा विभागांच्यावतीने एक दिवसीय राष्ट्रीय चर्चासत्र

"मराठी, हिंदी व इंग्रजी साहित्यातील देशीवाद"

शनिवार दि. २३ सप्टेंबर, २०१७

अध्यक्ष

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अनुक्रमणिका

देशीवाद और राष्ट्रवाद

प्रा. नरेंद्र फडतरे
श्रीमती मीनलबेन महेता
कॉलेज,
पाचगणी, ता. महाबलेश्वर,
जि. सातारा.

साहित्य में 'देशीवाद' संकल्पना मूलत: समाजशास्त्र और मानववंशशास्त्र से आई है। बीसवी सदी में विश्व – साहित्य में जो वाद और विचार–प्रणालियाँ सशक्त एवं प्रभावशाली बनीं, उनका प्रभाव भारतीय साहित्य पर भी दिखाई देता है। वैश्विक साहित्य की तरह भारतीय भाषाओं में भी 'देशीवाद' संबंधी चर्चा और साहित्य की समीक्षाऐ प्रारंभ हुई। भारतीय भाषाओं में सर्वप्रथम मराठी के प्रसिद्ध लेखक डॉ. भालचंद्र नेमाडे जी ने 'देशीवाद' संकल्पना का प्रारंभ किया। भारतीय साहित्य समीक्षा मुख्यत: पाश्चात्य समीक्षा सिद्धान्तो पर आधारित है। लेकिन यहाँ के ग्रामीण, दलित, आदिवासी, स्त्रीवादी, जनवादी और ऑचलिक जैसी देशी परंपरा से युक्त साहित्य का मूल्यांकन करने हेतु एक साहित्य सिद्धान्त के रुप में नेमाडे जी ने समीक्षा क्षेत्र में देशीवाद का सिद्धान्त रखा।

कुछ लोग देशीवाद की जडे उत्तर अमरिका के 'नेटिव्हीजम' शब्द में ढूंढते हुए रॉल्फ लिंटन केNativistic Movementलेख से नेमाडे जी ने प्रस्तुत संकल्पना ली ऐसा मानते हैं, तो कुछ लोग भारतीय परंपरा में संस्कृत साहित्य से लेकर मराठी और हिंदी के संत साहित्य, लोक साहित्य और अन्य देशी साहित्य की परंपरा में देशीवाद की जडे ढुंढन का प्रयास करते हैं। देशीवाद की भारतीय परंपरा पर विचार करते समय संस्कृतादि साहित्यशास्त्रीय विचारों का संदर्भ ध्यान में लेना महत्त्वपूर्ण है। संस्कृत साहित्य में सर्वप्रथम आचार्य दंडी ने अपने 'काव्यदर्श' ग्रंथ में 'देशी' शब्द का प्रयोग किया है। वहां देशी का अर्थ 'विशिष्ट प्रदेश या परिसर की भाषा' है। भाषाशास्त्रीय दृष्टि से इसे 'बोली' ;वपसमवजद्ध कह सकते है। 'तभदचस्तमो देशीप्यनेक: ग्राकृतकम:' सूत्र में दंडी ने तत्सम, तद्भव और देशी इन तीन प्रकारों का उल्लेख किया है। दसवी सदी तक 'देशी' और 'मार्गी' कल्पना का बोलबाला था। मार्गी व्यापक और उच्चभ्रू परंपरा से संबंधित थी, तो देशी लोक परंपरा से। मार्गी याने प्रमाण भाषा तो देशी याने बोलीभाषा। संक्षेप में, उस काल में 'प्रादेशिक भाषा' के अर्थ में ही 'देशी' संकल्पना प्रचलित थी।

बोली भाषाओं की भौगोलिक सीमाओं का वर्णन करने वाली 'देशी' संकल्पना वर्णनात्मक भाषाशास्त्र से आई है। साठोत्तरी कालखं डमें साहित्य में देशी, देशीपन, देशीयता जैसी संकल्पनाओं पर चर्चाऐं आरंभ हुई। लेकिन १९८० के पहले एक साहित्य–सिद्धान्त के रुप में 'देशीवाद' अस्तित्व नही था। नवम्बर १९८३ में कस्तुरबाई वालचंद महाविद्यालय, सांगली में आयोजित संगोष्ठी में भालचंद्र नेमाडे जी ने 'साहित्य तें देशीयता' आलेख पढते समय 'देशीवाद' संकल्पना का सर्वप्रथम प्रयोग किया। नेमाडे जी के अनुसार मनुष्य या साहित्य अपनी–अपनी भूमि पर ही, अपने–अपने भाषिक समूह में ही खंबीरता से खडे रह सकते हैं। संक्षेप में नेमाडे जी ने 'देशी' शब्द का अर्थ 'अपने भूमि से जुडे रहना' लिया है।

'देशीवाद' यह भू–सांस्कृतिक विशेताओं को महत्त्व देने वाला एक साहित्यिक सिद्धान्त है। विशिष्ट भाषिक समाज के सामाजिक–सांस्कृतिक यथार्थ को महत्त्व देना, देशीवाद की प्रमुख प्रवृत्ति है। प्रत्येक संस्कृति में बाहर के प्रभाव अपनी व्यवस्था में रूपांतरित कर उन्हें आत्मसात करने की अंगभूत शक्ति होती है। बाहर के प्रभाव आत्मसात करने की प्रकिया को ही नेमाडे जी देशीकरण कहते हैं। भारतीय संस्कृति में देशीकरण की अद्भुत क्षमता है। इस

संस्कृति ने समय–समय पर आर्य, हूण, शक, मुगल और ब्रिटिश आदि संस्कृतियों को अपनाकर उनका देशीकरण किया है। देशीवाद में परंपरा, आधुनिकता और नैतिक मूल्यों का भी नेमाडे जी ने महत्त्वपूर्ण स्थान दिया है।

हिंदी का 'राष्ट्र' शब्द अंग्रेजीNation(नेशन) शब्द का अनुवाद है और इसकी व्युत्पत्ति लॅटिन शब्दNatioसे हुई है। राष्ट्र संकल्पना में राजकीय, सामाजिक, सांस्कृतिक, भौगोलिक और आर्थिक घटक महत्त्वपूर्ण होते है। राष्ट्रसंकल्पना में भाषा लिपि, धर्म, विशिष्ट भू–प्रदेश, परंपरा, एकता की भावना और आर्थिक हित आदि बातों को महत्त्व दिया जाता है। भाषा और लिपि के कारण ही एक पीढी की बातें दूसरी पीढी तक सरलता से पहुंचती है। इसिलिए एक राष्ट्र के लिए एक भाषा और एक लिपि का होना जरूरी होता है। भारत बहुभाषिक राष्ट्र होने कारण आंत:प्रांतीय व्यवहार संरलता हो, इसिलिए भारत संविधान ने हिंदी को राजभाषा और राष्ट्रभाषा के रुप में स्वीकार कर देवनागरी को राष्ट्रीय लिपि के रुप में मान्यता दी है। मनुष्य के अंतर्मन में कहीना कहीं अप्रत्यक्ष या सुप्त रुप में राष्ट्र और धर्म के बीच हमेशा कुछ न कुछ स्थान रहा है। इसीकारण धर्म को भी राष्ट्र का महत्त्वपूर्ण घटक माना जाता है। विशिष्ट भू–प्रदेश को तो राष्ट्र भावना का आधार माना जाता है। इसीकारण राष्ट्र शब्द के पर्यायवाची शब्द के रुप में 'देश' शब्द प्रचलित है।

विशिष्ट भू–प्रदेश की तरह परंपरा को भी राष्ट्र संकल्पना में महत्त्वपूर्ण स्थान है। विशिष्ट सांस्कृतिक परंपरा प्रत्येक राष्ट्र की अनमोल अमानत होती है। इसीकारण राष्ट्रकी विशिष्ट संस्कृति का अभियान राष्ट्राभिमान का महत्त्वपूर्ण अंग माना जाता है। राष्ट्रीय साहित्य, राष्ट्रीय शिक्षा, राष्ट्रीय खेल, राष्ट्रीय संस्कृति आदि शब्दों के अत्याधिक प्रचलन से भी राष्ट्र और राष्ट्रीयत्व संकल्पना में सांस्कृतिक परंपराओं का स्थान अधोरेखित होता है। राष्ट्र के निर्माण के लिए एकता की भावना का होना भी अत्यावश्यक है। इसीकारण एकता की प्रबल भावना से युक्त, विशिष्ट भू–प्रदेश, भाषा एवं संस्कृति से संपन्न समाज को राष्ट्र कहा जाता है। राष्ट्र भावना में 'मै' की जगह 'हम' महत्त्वपूर्ण होता है।

संक्षेप में 'राष्ट्र' याने विशिष्ट भू–प्रदेश, उस प्रदेश पर परंपरा से रहने वाले विविध वर्ग, वर्ण जाति, वेशभूषा, भाषा और रीति–रिवाज आदि से एक सूत्र में पिरोए हुए लोगों का समूह है। राष्ट्र संकल्पना और शासकीय सत्ता के प्रति अपनेपन की भावना होती है। राष्ट्र संकल्पना मुलत: राजकीय और प्रदेशनिष्ठ है, तो राष्ट्रीय संकल्पना में सांस्कृतिक संदर्भ भी समाविष्ट होते है। राष्ट्र संकल्पना में विशिष्ट भू–प्रदेश, लोक समूह, सार्वभौमत्व, परंपरा, एकता की भावना आधिक हित और भाषा ये घटक महत्त्वपूर्ण माने जाते है। धार्मिक, सांस्कृतिक, वांशिक, ऐतिहासिक, राजकीय आदि सभी आप्त बंधनों के कारण राष्ट्र की निर्मिती होती है।

राष्ट्र शब्द से ही 'राष्ट्रवाद' शब्द का निर्माण हुआ है। अधिकांश लोग मानते है की अंग्रेजी सत्ता के प्रतिकिया स्वरूप राष्ट्रवाद का प्रचलन हुआ। लेकिन यह बात १००: सही नही है। प्राचीन भारत में राष्ट्रवाद नहीं था, ऐसा कहना सर्वथा अनुचित होगा। यह सही है कि अंग्रेजी शासन काल में अंग्रेजी की शोषक वृत्ति के विरोध में राष्ट्रवाद की ज्वाला फिरसे भभक उठी। न्यायमूर्ति रानडे जी को आधुनिकता के संदर्भ में राष्ट्रवाद पर विचार करते समय छत्रपती शिवाजी महाराज के स्वराज्य स्थापना के प्रयत्नों में आधुनिक राष्ट्रवाद के लक्षण दिखाई दिए । रानडे जी ने राष्ट्रवाद में एक धर्म, एक भूमी, एक भाषा, एक संस्कृति, एक परंपरा, एक साहित्य तथा समान सुख–दु:ख, समाम भूत और भविष्य एवं समान आकांक्षा से युक्त लोक समुदाय को महत्त्वपूर्ण माना है।

रानडे जी के अतिरिक्त लोकहितवादी गोपाळ हरि देशमुख, विष्णू भिकाजी गोखले, दादाभाई नौरोजी, महात्मा जोतीबा फुले, लोकमान्य तिलक, गोपाळ गणेश आगरकर, महात्मा गांधी, डॉ. बाबासाहेब आंबेडकर आदि ने भी राष्ट्रवाद के संबंध में अपने विचार रखें है। डॉ. आंबेउकर जी ने राष्ट्रवाद को मानवी इतिहास में एक अत्यंत प्रभावी शक्ति के रुप में स्वीकारा है। उनके अनुसार राष्ट्रवाद यह समूह विशेष की भावना है और यह भावना जिनके मन में निर्माण होती है, वे अपने आपको एक परिवार का ही मानते है।

उपरोक्त विवेचन के आधार पर हम कह सकते कि प्राचीन भारतीय परंपरा से आधुनिक भारतीय परंपरा तक राष्ट्रवाद की भावना का अस्तित्व था, लेकिन अंग्रेजी सत्ता के प्रतिक्रिया के रुप में इसका विशेष प्रचलन हुआ। भाषा, भू–प्रदेश, लोक समुदा, संस्कृति आदि देशीयता, के जोतत्तव है, वे राष्ट्रीयता में भी दिखाई देते है। जब हम 'भारतीय साहित्य' कहते है, तो उसका संबंध भारतीय भाषा और संस्कृति से होता है। इस दुष्टिसे 'भारतीयता' संकल्पना 'देशीयता' संकल्पना के साथ जुडी हुई दिखाई देती है। निष्कर्ष हम कह सकते कि देशीयता संकल्पना भारतीयता संकल्पन में अंतर्भूत है और 'राष्ट्रीय' या राष्ट्रीयता संकल्पना में देशीयता और 'भारतीयता' दोनो संकल्पनओं को अंतर्भूत कर लेने की शक्ति है।

संदर्भ ग्रंथ सूची :–

१. देशीयता ते जागतिकीकरण, डॉ. मदन कुलकर्णी.
२. देशीवाद, डॉ. अशोक वायर.
३. भारतीय राष्ट्रवाद, न.ना. भिडे
४. टांवेउकर विचारमंथन, वा.ना.कुवेर
५. टीकास्वयंवर, भालचंद्र नेमाडे.

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संपादक

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मराठी समीक्षेतील राजकीय व्यवहार

कस्तुरे अनंता

तावना :

त्येक मानवाला जीवनात आर्थिक, सामाजिक, राजकीय आणि शैक्षणिक अनेक व्यवहारांना सामोरे जावे लागते. साहित्य व्यवहार हा जीवनातील नोरंजन व लेखनाच्या कक्षा वृध्दींगत करणारा महत्त्वाचा व्यवहार आहे. णतेही असो राजकारण हे प्रत्येक ठिकाणी केंद्रभूत असते. साहित्य समीक्षा त्यास अपवाद नाही. "एकोणिसाव्या शतकाच्या पहिल्या अर्धशतकात रण हा समीक्षेच्या प्रांतात फार मोठा अडसर ठरला असावा असे दिसते"[१] ल्हाद कुलकर्णी यांनी व्यक्त केलेल्या मताप्रमाणे मराठी साहित्यातील च्या प्रांतातही राजकीय व्यवहार प्रत्यक्ष-अप्रत्यक्षपणे सुरु आहे. मराठी क्षेत्रामध्ये विविध प्रसारमाध्यमे, साहित्य-प्रकाशन संस्था, संमेलने, संमेलने, चर्चासत्रे-परिषदा अशा विविध पातळ्यांवर राजकीय व्यवहार रु आहे? त्यामध्ये गट तट, विविध साहित्य प्रवाह-प्रकार कसे निर्माण आहेत? साहित्य, वाचक, अभिरुची समीक्षेमध्ये त्याचा कसा परिणाम आदीबाबतचा शोध या शोधनिबंधातून घेतला आहे.

ठी समीक्षेतील व्यवहाराचे स्वरुप :

राठी शब्दकोशामध्ये समीक्षक किंवा समीक्षा या शब्दाचा अर्थ सूक्ष्मशोध, छाननी, बारीक परीक्षा, तपासणी, अवलोकन असा दिलेला आहे. प्रत्यक्षात हा शब्द मराठी समीक्षकांनी इंग्रजी criticism वरुन घेतलेला दिसतो. तीची निर्मिती आणि तिचे तंत्र यांचे स्पष्टीकरण किंवा मुल्यमापन साठी केलेली पध्दतशीर आणि साधार चर्चा अशी समीक्षेची इंग्रजीमध्ये ा केली आहे. मराठी समीक्षेच्या प्रांतात आर्थिक, राजकीय, सामाजिक,

शैक्षणिक आदी क्षेत्रात विविध व्यवहार होत असतात. "साहित्यसमीक्षा हा स्वायत्त आणि स्वतंत्र व्यवहार आहे. साहित्य निर्मितीला उपकृत करणे अथवा साहित्यस्वादाला उपकृत करणे हे साहित्य समीक्षेचे मुळी कार्यच नाही अशी धारणा करुन घेतल्यामुळेही असे होते. परंतु यांचा एकंदर साहित्य व्यवहारावर काही विपरीत परिणाम होतो की काय याची दखल घ्यायला हवी"[२] मराठी साहित्यक्षेत्र अंतर्गत राजकारणाने ढवळून निघाले आहे. विविध साहित्य प्रवाह, प्रकारानुसार गट-तट निर्माण झाले आहेत. मुद्रित माध्यमे, संमेलने, चर्चासत्र-कार्यशाळेतही राजकीय वास येतो. शैक्षणिक क्षेत्रातही अटीतटीचे राजकारण केले जात आहे. साहित्यक्षेत्रातील राजकारणाबद्दल डॉ. रवींद्र ठाकूर लिहितात, "साहित्यात एक आणि प्रत्यक्षात मात्र दुसरेच असे आतले आणि बाहेरचे दुहेरी की दुटप्पी जगणारे आणि तसेच बेगडी लिहिणारे लोक मराठी साहित्यक्षेत्रात गाजरगवतासारखे फोफावले आहेत."[३] मराठी समीक्षेच्या साहित्याच्या क्षेत्रात अंतर्गत राजकीय व्यवहाराचा परिणाम साहित्य व्यवहारावरही होताना पहावयास मिळतो. बाबाबत डॉ. सदा कन्हाडे यांनी, "मराठी साहित्य समीक्षा व्यवहार तटस्थपणे पुनः पुनः तपासून पहावा लागेल असे मला वाटते"[४] असे मत व्यक्त केले आहे. एकूणच मराठी साहित्य समीक्षेतील राजकीय व्यवहार पुढीलप्रमाणे चालताना पहावयास मिळतो.

३. मराठी साहित्य समीक्षेतील राजकीय व्यवहार :

अ. प्रसारमाध्यमातील राजकीय व्यवहार :

मुद्रित, पारंपरिक, दृकश्राव्य, सोशल-मिडिया आदी प्रसारमाध्यमांचे प्रकार आहेत. या सर्व माध्यमांमध्ये मराठी समीक्षा व्यवहार होत असतो. वृत्तपत्र-नियतकालिकातील पुस्तक परीक्षण, समीक्षण, विशिष्ट हेतू ठेवून केलेले बातमीलेखन, विविध प्रकारचे टीकात्मक लेख, टी.व्ही. चॅनेल - सोशल मिडियावरील कवीसंमेलने, साहित्य-समीक्षाविषयक चर्चा या सर्वांचा समावेश समीक्षा व्यवहारात होतो. हे सर्व समीक्षा व्यवहार राजकारण प्रेरीत असतात. या व्यवहारात प्रत्यक्ष-अप्रत्यक्ष

क्ष्यमापन करतात. थोडक्यात या सर्वांमध्ये राजकीय व्यवहार प्रत्यक्ष-
प्रत्यक्ष पातळीवर होतच असतो.

विद्यापीठ अभ्यासक्रमातील राजकीय व्यवहार :

ालेय-विद्यापीठस्तरीय अभ्यासक्रम नेमण्यातही समीक्षकात्मक राजकीय
थवहार हा स्पष्टपणे दिसून येतो. आजपर्यंतच्या शालेय व विद्यापीठस्तरीय
मलेल्या अभ्यासक्रमांकडे पाहता असे दिसून येते की, ठराविक लेखक,
टतट, जातधर्मातील राजकारण अंतर्गतच कलाकृती, कविता, लेख,
कथा, समीक्षात्मक ग्रंथ अभ्यासक्रमांमध्ये समाविष्ट केलेले दिसतात.
भ्यास मंडळावरतीही ठराविक लोकांचीच सत्ता व मक्तेदारी असलेली
दिसते. प्रत्येक विद्यापीठीय पाठयपुस्तक निर्मितीचे गट एकमेकांची, संपर्क-
र्तुळातील साहित्यकांची कविता, कथा, पुस्तकं, संदर्भ ग्रंथ त्या त्या
विद्यापीठात नेमून उपकाराची परतफेड करताना दिसतात. विद्यापीठस्तरीय
ुरस्कारही या राजकीय व्यवहारांनी प्रेरित असतात. त्यामुळे
भ्यासमंडळे, विद्यापीठे ही अभ्यासक्रम, पाठयक्रमांचे राजकीय अड्डे
नले आहेत.

ा प्रकारे साहित्य-समीक्षाक्षेत्रात विविध पातळीवर राजकीय व्यवहार
तो. समीक्षेतील राजकीय व्यवहार हा साहित्यक्षेत्रात महत्त्वाचा असून
च साहित्यक्षेत्राची उंची, प्रतिष्ठा ठरते. यामुळे समीक्षेत्राकडे सर्व वाचक,
विशेष लक्ष असते.

र्ष :

णिक, सामाजिक, सांस्कृतिक आदी क्षेत्राप्रमाणेच साहित्यक्षेत्रामध्ये
श्रत: समीक्षेच्या प्रांतात राजकीय व्यवहार होत असतो.

त्य समीक्षेत्रातील राजकीय व्यवहार हा अप्रत्यक्ष, अलिखित पातळीवरचा
तो. त्यामुळे प्रतिक्रिया, तक्रार याशिवाय या व्यवहारात मक्कम असा
ा मिळत नाही.

३. मराठी समीक्षेच्या क्षेत्रात प्रसारमाध्यमे, साहित्य-प्रकाशन संस्था, साहित्य संमेलने, कार्यशाळा, विद्यापीठीय अभ्यासक्रम आदी क्षेत्रात राजकीय व्यवहार होत असतो.

४. समीक्षाक्षेत्रातील राजकीय व्यवहारामुळे साहित्यक्षेत्रात गट-तट पडले असून जात-धर्म, साहित्य-प्रवाह आदीनुसार समीक्षा केली जात आहे.

५. साहित्य-समीक्षा क्षेत्रातील व्यवहारामुळे साहित्यिक, समीक्षक, प्रकाशक हे राजकीय नेत्यांच्या पक्षीय राजकारणात अडकलेले दिसतात. काहींनी तर राजकीय पदे मिळाल्यामुळे संबंधित नेत्यांची समीक्षा सोयीस्कर व सकारात्मक केली असल्याचे दिसते.

६. या सर्व राजकीय व्यवहारामुळे नवोदित लेखक तसेच दर्जेदार लेखन करणारे साहित्यिक हे दुर्लक्षित होत आहेत. त्यांच्या कलाकृतीवर पाहिजे तशी समीक्षा व हवी तशी प्रसिध्दी होत नसल्याचे उघडपणे दिसते.

५ सारांश :

मानवी जीवनात व्यवहाराला अतिशय महत्त्व आहे. "ज्याला आपण साहित्य म्हणतो तो एका अर्थी मानवी अनुभवांचा भाषिक व्यवहाराच असतो."[८] मराठी साहित्य समीक्षेमध्ये आर्थिक, सांस्कृतिक व्यवहाराप्रमाणेच राजकीय व्यवहारही होतो. समीक्षा क्षेत्रांचा विचार करता प्रसारमाध्यमे, साहित्य-प्रकाशन संस्था, साहित्य संमेलने, कार्यशाळा, विद्यापीठीय अभ्यासक्रम आदी पातळयांवर राजकीय व्यवहार चालतो. या राजकीय व्यवहारामुळे ठराविक गटांची, लोकांची या क्षेत्रात मक्तेदारी निर्माण झाली आहे. काही लेखक, समीक्षक व प्रकाशक हे राजकीय नेतेमंडींच्या पक्षीय राजकारणात अडकलेले किंवहुना त्यांचेच कार्यकर्ते झालेले दिसून येतात. राजकीय व्यवहारामुळेच नवोदित लेखक, दर्जेदार लेखक यांच्या कलाकृतींवर त्रोटक समीक्षा लिहिलेली दिसते. या चांगल्या व गुणवान लेखकांना पाहिजे तेवढी प्रसिध्दी व साहित्य क्षेत्रातील विविध संधी मिळताना दिसत नाहीत. समीक्षा क्षेत्रात राजकीय व्यवहार करणाऱ्या मंडळींनी चांगल्या

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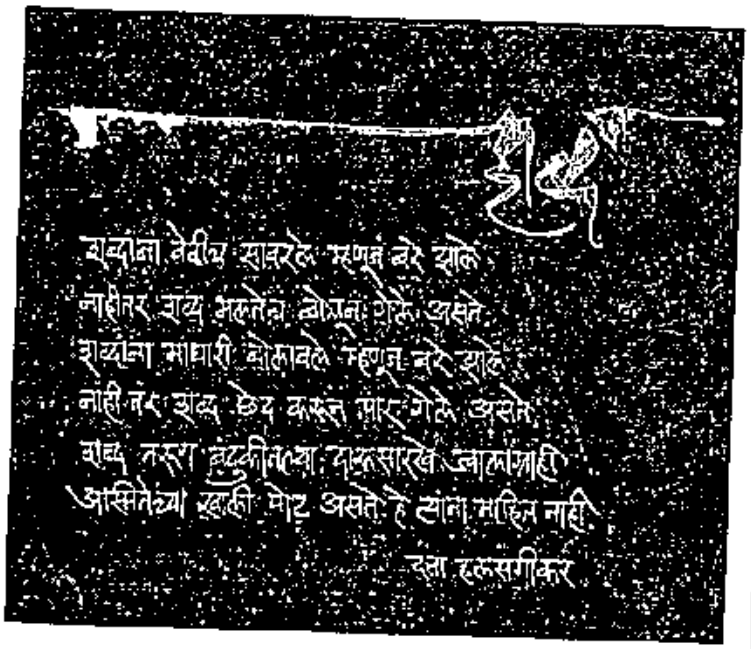

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मध्ययुगीन काळातील मराठी कवयित्रींची परंपरा

डॉ. अशोक सदाशिव तवर
मराठी विभाग,
लाल बहादूर शास्त्री कॉलेज ऑफ आर्टस्, सायन्स अॅण्ड कॉमर्स, सातारा

प्रस्तावना :–

महाराष्ट्राच्या इतिहासात 'यादव काळ' हा कालखंड अत्यंत महत्त्वाचा आ याच काळात महाराष्ट्राच्या अस्मितेचा पहिला हुंकार बाहेर पडला, असे म्हटल चुकीचे ठरणार नाही. यादव काळ हा राजकीय, सामाजिक, सांस्कृतिक दृष्ट संपन्न होता, तसाच तो साहित्य, कला यांच्या बाबतीतही समृद्ध असल्याचे दि येते. यादवकाळातच मराठी साहित्य लेखनाला सुरवात झाली. महानुभाव, वार दत्तसंप्रदाय असे काही पंथ साहित्यनिर्मिती करीत होते. त्यांच्या साहित्य निर्मिती पंथ प्रसाराचे प्रमुख उद्दिष्ट असले तरी त्यातून अनेक प्रतिभावंतांना अभिव्य होण्यासाठी संधी मिळाली असल्याचे दिसून येते. संत ज्ञानेश्वरांनी ज्ञानेश्वरी लि स्त्री-शुद्रांना अभिव्यक्तीचा मार्ग मोकळा करुन दिला. उपेक्षा आणि अवहे यांच्या चक्रात पिचणाऱ्या स्त्री-शुद्रांना ज्ञान ग्रहणाबरोबरच भक्तीचा अधिकार झाला. त्याचा परिणाम म्हणून महदाइसा, मलाइसा, उमांबा, मुक्ताबाई, जनाब कान्होपात्रा, गोणाई, राजाई, आऊबाई, लिंबाई, सोयराबाई, निर्मला, भानु बहिणाबाई, वेणाबाई, बयाबाई, अंबाबाई अशी कवयित्रींची परंपरा मराठीत झाली. ही परंपरा अखंड अशी नाही. त्याची काही सांस्कृतिक, सामाजिक, ध राजकीय कारणे आहेत. त्याची चर्चा करणे येथे आवश्यक वाटत नाही. म कवयित्रींनी मराठीसाठी दिलेल्या योगदानाची चर्चा होणे आवश्यक वाटते.

मराठीतील संत कवयित्री :–

मराठीत साहित्यलेखनाचा प्रारंभ यादवकाळात झाला. याचकाळात लेखिकांचाही उदय झाला ही गोष्ट महत्त्वाची ठरते. मराठीतील आद्यकव महदंबा ही ठरते. ती महानुभाव पंथीय असली तरी तिच्या लेखनीत श्रीकृष्णावि असलेली भक्ती तिला संत पद देऊन जाते. संत ज्ञानेश्वरांची बहिण मुक्ताबाई, नामदेवांची दासी जनाबाई, कान्होपात्रा, संत तुकारामांची शिष्या बहिणाबाई, स शिष्या वेणाबाई व अन्य काही प्रतिभावंत स्त्रिया झाल्याचे दिसून येते. महा

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