3.3.2

Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years: 24

Year	2022-23	2021-22	2020-21	2019-20	2018-19
Number	05	06	07	03	03

Name of Teacher	Year	ISBN	Publisher
Patil RB	2023	1742-6596	IOP London
Wali B.S.	2023	978-93-88901-24-6	Bhumi Publishing
Lagade V. M.	2023	978-93-88901-24-6	Bhumi Publishing
Wali B.S.	2023	978-81-956739-6-4	Prarup publications
Patil RB	2022	978-3-8443-9066-7	LAP LAMBERT Academic Publishing, Germany
Pawar PS	2022	978-3238-5705-5	Elsevier
Magdum ST	2022	2249-894X	Review of Research
Patil RB	2021	2454-3225	JOAASR
Sutare MS	2021	978-81-926339-06	Academia.edu
Sutare MS et al	2021	978-93-90651-59-7	Mahi Publication, Ahmadabad Gujarat
Lagade V M et al	2021	978-926339-06	Department of Botany, YPSC Solankur
Wali BS and Lagade VM	2021	978-926339-06	Department of Botany, YPSC Solankur
Patil RB, Tamboli SH	2021	2214-7853	Elsevier
Madhale SV et al	2020	978-81-926339- 06	Department of Botany, YPSC Solankur
Madhale SV et al	2020	978-81-926339- 06	Department of Botany, YPSC Solankur
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Madhale SV et al	2020	978-81-926339- 06	Department of Botany, YPSC Solankur
Sutare MS	2019	978-3-330-34617-8	LAP LAMBERT Academic Publishing, Germany
Patil RB, Tamboli SH	2019	978-81-938664-5-0	Utkranti Publishing
Patil RB, Tamboli SH	2019	978-81-938664-5-0	Utkranti Publishing
Lagade VM	2018	978-81-931247-7-2	Bhumi Publishing
Sutare MS	2018	978-81-931247-7-2	Bhumi Publishing
Tamboli SH et al	2018	978-93-5346-224-6	Elsevier Netherlands.

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5th International eConference on Frontiers in Materials Engineering and nanoTechnology (ICFMET 2023) 05/05/2023 - 06/05/2023 Kolhapur, India

Accepted papers received: 15 September 2023
Published online: 13 October 2023

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Preface

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5th **International eConference on Frontiers in Materials Engineering and nanoTechnology** [ICF-MET-2023] has been held on May 05 – 06, 2023 by Shri Yashwantrao Patil Science College Solankur India. The aim was to provide the common platform for students, professors, researchers and industrialist to present their recent research in the field of Materials Science; Materials Engineering; Mechanical Engineering; Metallurgy; Nanotechnology; Metals, alloys and compounds; Nanofabrication; Properties of Materials; Synthesis, characterization and applications of Materials; Advances in Nanotechnology. It aims at the interaction of knowledge of current and future innovation in the above mentioned field for societal needs. The pandemic situation has taught human beings a lot and now the time to work towards it with new technological ideas. 5th ICF-MET-2023 provides the bridge to fill up the gaps that were essentially found during the pandemic.

The response from the scientific community was excellent. The organizers received 95 abstracts; out of which 25 abstracts were rejected. Remaining authors were called to join the conference and share the knowledge with the peers in the field. The five invited talks were arranged where peers from various well known institutions such as KAUST Saudi Arabia; The New College Shivaji University Kolhapur; The LNM Institute of Information Technology Jaipur; Kathmandu University Nepal; participated and all of the participants gave the oral presentations.

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EMERGING TRENDS IN BASIC AND APPLIED SCIENCES

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STUDY OF MESOFAUNA DIVERSITY IN AGRICULTURAL LAND: A REVIEW

Anupama Pawar[1] and Bharati Wali*[2]
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Abstract:

The mesofauna are vital constituent of soil ecological system. Soil biota is an important natural resource that need a careful management and included as component of soil biological diversity. Soil biota need to be conserved because by virtue of their diverse communities, they are capable of wide variety of soil functions such as decomposition, mineralization, and maintaining soil microstructure. In other words, soil biota plays a significant role in maintaining the soil suitable for agricultural use.

The variations in soil biota communities have been a focus on ecological research.It is an important area of research that enables to understand the complexity of intrinsic and extrinsic forces that influence the population of soil biota temporally as well as seasonally.The seasonal changes in the relative humidity and the temperature can significantly affect the population of soil biota.Soil biota is abundant in most of agricultural soils, but their importance is often overlooked.In agricultural ecosystems, the activity of soil biota is influenced by management practices through changes in the soil environment from cultivation.Thus, cultivation of crops might subsequently affect the population of its inhabitants such as mesofauna that are active biological components of soil ecosystems.

Keywords: Mesofauna, Soil, Agriculture.

Introduction:

Soil is very important factor containing many nutrients. Due to this nutrient, organic food is produced. Small organism enhances fertility of the soil, these organisms need to be conserved and restored naturally. A single gram of soil can contain 10,000–50,000 different microbial organisms (Roesch *et al.,* 2007). Disrupting their food chain will disturb ecological niche. Interrupting habit and habitat of particular reduce fertility of the soil in addition nutrients will not meet requirements.Mesofauna are important animals in maintaining belowground food chain, (Poole, 1997).

Most of these processes, directly or indirectly depend on the functional integrity of soil-based food webs (Scheu, 2002). Below ground food webs particular use organic matter as the main energy resource facilitating its liberation, mineralization, and eventual separation (Setala *et al.,* 2005). The functional role of the microfauna and macrofauna (Blouin *et al.,* 2013; Lavelle, 1988) have a comparatively well recorded. The impact of the mesofauna community including general micro arthropod grazers and predators such as Collembola and Acari on soil functional traits is not well documented, (Chauvat*et al.,* 2007; Kampichler and Bruckner 2009; Setala*et al.,* 2005).

Mesofauna: organisms whose body size is between 200 µm and 2 mm(Van der Drift, 1951). Microarthropods such as mites and springtails, are the main representatives of this group, which also includes nematodes, rotifers, tardigrades, small araneidae, pseudoscorpions, opiliones, enchytraeids, insect larvae, small isopods and myriapods. Mesofauna organisms have limited burrowing ability and generally live within soil pores feeding on organic materials, microfauna and other invertebrates.Among known organismsArthropoda comprise 85% (Decaens *et al.*,2006). The present investigation help to study soil biodiversity and effect of intense agriculture activity upon soil animals.

Review of Literature:

The action of mesofauna detritivores is usually considered indirect as they mainly feed on bacteria and fungi, even if some species can also feed directly on organic matter (Hopkin1997).

TOXICITY INDUCED ALTERATION IN ENZYME PROTEASE ACTIVITY OF FRESHWATER SNAIL *BELLAMYA BENGALENSIS*

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Abstract:

Enzymes as biocatalyst regulate the rate of physiological process and occupy central role in health and also has critical role in diseased conditions. Enzymes are involved in number of physiological reactions from simple digestion of food proteins to highly regulated cascades. Digestive enzyme like proteases can either break specific peptide bonds, depending on the amino acid sequence of a protein or break complete peptide to different amino acids. In the present investigation, the digestive enzyme i.e protease activity was recorded at different exposure periods (24h, 48h, 72h. and 96h) after exposure to metal copper sulphate and plant pod extract of *A. sinuate* along with control group. All experimental sets were calculated for pre-determined mean LC_{50} concentration of metal copper sulphate (0.56 ppm) and pod extract of *Acacia sinuata* (232 ppm).

In this study, the proteases activity was detected after exposure to copper sulphate and plant pod extract *A. sinuata* in different digestive tissues like salivary gland, oesophagus, intestine, stomach, hepatopacreas of freshwater snail *Bellamya bengalensis*. After exposure periods, the proteases activity was highly decreased in digestive tissue at both exposures i.e. copper sulphate and *Acacia sinuata*. Obtained results conclude that, the digestive system play important role in enzyme activity however, any toxic metal enter into the body, the enzyme activity was significantly altered and it may produce detrimental impact on physiological system of organism.

Keywords: *Bellamya bengalensis*, Copper sulphate, *Acacia sinuata*, Digestive tissue, Proteases activity.

Introduction:

Almost all human activities generate potential pollutants. A developmental process has released organic and inorganic wastes in the environment. Contamination in the media is by biological, physical and chemical mixing of toxicants. If concentrations of contaminant in the environment increased at higher levels, causes severe ecological damages. Over 10 million of organic compounds were synthesized and perhaps 10,000 found in regular domestic and industrial use. The nature of toxic chemical depends on the concentration of substances and it's time duration for which, the organism are exposed to it. Toxic impact may bring physiological, biochemical or pathological alterations in organism (Subramanian, 2010).

Proteases occur naturally in all organisms. These enzymes are involved in number of physiological reactions from simple digestion of food proteins to highly regulated cascades. The protease activity can be a destructive change, which abolishing digestive function or digesting it to its principal components. Proteases belong to the class of enzymes known as hydrolases, which catalyse the reaction of hydrolysis of various bonds with the participation of water molecule.

In present scenario, large numbers of toxicants are entered in environment and produced impact on ecosystem. At Present, aquatic habitats are enormously polluted by adding various industrial toxic components regularly. Results of this increase the health risks to all aquatic organisms (Pandey et. al., 2005). In ecological health assessment of aquatic habitat, the molluscs as an invertebrate are good bio-monitoring agents because they can accumulate pollutants considerably higher than other aquatic animals (Hamed and Emara, 2006).

National Conference on Biodiversity and Biosciences (NCBB-[illegible]) Research Book
(Balwant College, Vita (M.S.) India 415 311)

Herbal Mosquito Repellent Cream from Some Medicinal Plants

Ashwini P. Pawar[1] and [illegible]

[1]Department of Zoology, Smt.Shobhatai Kore Warana Mahila Mahavidyalaya, Yelur
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ABSTRACT: Mosquito borne diseases such as malaria, filariasis, dengue, yellow fever and encephalitis are continuing to be major health problems for the people globally. The advent of the compounds like DDT, N N Diethyl benzamide, Prallethrin and, Transfluthrin, as well as use of Chemical based mosquito repellent creams and coils may cause allergies and breathing problems leave harmful effects on human health and toxic to non-targeted organisms. Mosquito repellents do not kill, but prevent mosquitoes from biting for a period of time. Use of indigenous plants having medicinal properties may act as repellents and prevent human beings by mosquito bites. The species of plants like *Oscimum sanctum* (tulas), *Vitex negundo (Nirgundi)*, *Azadirachta indica* (neem tree), *Eucalyptus globulus* (Nilgiri) and *Hyptis suaveolens* (Ran tulas) are known to have mosquito repellent activity. Plant products are biodegradable, pesticide residue free and safe. Mosquito vectors cause life-threatening diseases and killed more than a million humans every year around the world. Attention was not paid in developing affordable, mosquito repellent cream using traditional indigenous plants. The present investigation exhibits an easy applicable alternate, cost-efficient chemical residue free remedy as herbal mosquito repellent cream.

KEYWORDS: Herbal Mosquito Repellant Cream, Indigenous plants, Mosquito bite.

INTRODUCTION: Mosquitoes transmit several life-threatening diseases by carrying pathogens through saliva. Majority of mosquito species belonging to Anopheles species. Culex and Aedes are vectors for the pathogens of various diseases like Malaria, Filariasis, Japanese Encephalitis (JE), Dengue fever and yellow fever. Therefore, one of the approaches for control and prevention of these mosquito borne diseases is the obtrusion of disease transmission by either killing the mosquitoes or preventing them from biting human beings. During earlier days and before the discovery of synthetic organic insecticides, preventing mosquitoes from biting is only remedy to avoid getting infected. This is achieved by using herbal mosquito repellent creams without having any side effects. Chemical-based creams may cause some side effects, (Campbell, 1993, Jacobson, 1971; Hartzell, 1941). Herbal products such as Nicotine from tobacco leaves (Nicotiana tabacum), Anasbasine and Lupinine (alkaloids extracted from Russian weed Anabasis aphylly), Rotenone from Derris elliptical and Pyrethrums from *Chrysanthemum cinerarifolium* flower of proven potentials have been playing an important role as natural mosquito repellent or insecticide in the interruption of the transmission of mosquito borne diseases both at the individual and the community level (Lawal, et al., 2012). The selection of these five species of plants was based on their availability at local level and its scientific evidence and the folkloric use as mosquito repellents. Plant extracts have essential oils with odor have been established as Mosquito repellents. Humans and domestic animals are not harmed by herbal creams as they are natural and biodegradable, (Mittal, et al.,2003). Since,

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Vilas Killedar
Pradip Kamble
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Understanding of Basic Electronics Devices

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Nanocrystalline metal oxide-based hybrids for third-generation solar cell technologies

8

Prakash S. Pawar[1,2], Pramod A. Koyale[1], Ananta G. Dhodamani[1,3] and Sagar D. Delekar[1]

[1]Nanoscience Research Laboratory, Department of Chemistry, Shivaji University, Kolhapur, Maharashtra, India, [2]Department of Chemistry, Shri Yashwantaro Patil Science College Solankur, Kolhapur, Maharashtra, India, [3]Department of Chemistry, Rajarshi Chhatrapati Shahu College, Kolhapur, Maharashtra, India

8.1 Introduction

Among the various renewable sources, solar energy has the potential to replace the existing nonrenewable sources as well as to resolve the energy crisis so as to meet the energy needs of humans. This is due to its various features such as giant availability, environmental benignness, cost effectiveness, and easy availability (Gielen et al., 2019), etc. With invention of first solar cell by American Scientist Charles Fritts in 1883 onwards, investigators continuously progressing in terms of designing the different materials, device architectures and assembly so as to reach the next-generation performance, as well as low-cost devices (Sharma et al., 2021). For the last few decades, the solar cell technology has grown as an extraordinary source of renewable energy to meet the global energy needs. Generally, the solar cells are categorized into three different generations, depending on the type of materials deployed for their fabrication.

The first generation is highly matured solar cell technology and hence it is dominated in the market. The first-generation photovoltaic devices are fabricated either by crystalline silicon (c-Si) or Gallium Arsenide (GaAs) wafers. The c-Si-based photovoltaic devices are commercialized well than that of GaAs (Płaczek-Popko, 2017), which is due to higher efficiency and toxic nature of gallium and arsenic. However, the fabrication process for making silicon wafers is tedious, highly expensive, and hence higher overall cost of such devices, which limit the excessive use of silicon-based solar devices. To overcome the laggings of first-generation solar devices, scientists have been focusing on the development of the materials under second-generation solar devices (Sharma & Chaujar, 2020). Second-generation that is thin-film solar devices, fabricated by depositing one or more thin layers of the materials such as copper indium gallium diselenide (CIGS), cadmium telluride (CdTe), and amorphous thin-film silicon (a-Si), etc. on the substrates viz.

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Department of Physical Education and Sports
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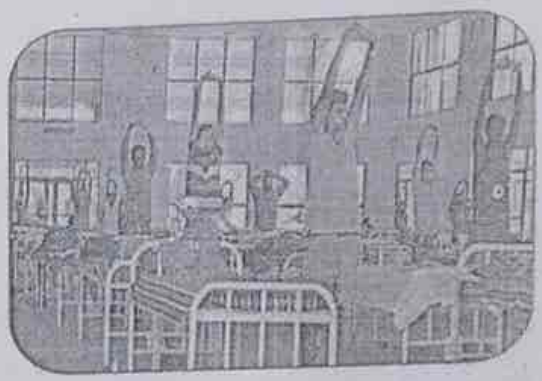
"Nutrition, Exercise, Precautions and Safety Measures for Prevention from Viral Diseases"
March 11th & 12th 2022

TO DEVELOP PSYCHOLOGICALHEALTHINESS OF COVID PATIENT THROUGH YOGIC EXERCISES

Dr. Sushant T. Magdum
Director of Physical Education and Sports,
Shri. Yashwantrao Patil Science College, Solankur, Tal- Radhanagri, Dist.- Kolhapur.

ABSTRACT:

The present study was designed to assess the effect of Yogicexercises on the psychological healthiness of Covid Suffering Patient. A self-made psychological wellbeing scale was used to examine the participant's psychological healthiness, by using pre and post-test design. In order to examine effects of exercises on psychological healthiness, a training program was introduced by Yoga expert. Results found beneficial effects of Yogicexercises on the psychological healthiness of Covid Suffering Patient.



KEYWORDS: *Yogic exercises, psychological healthiness, CovidSuffering Patient, beneficial effects.*

1. INTRODUCTION

Now a day's people are facing different kinds of health problems with new dimensions, appearance and manifestations. Medical sciences are trying to tackle and cure the problems but unable to ensure complete health and wellbeing. Yoga provides the key to holistic development as physical, psychological and spiritual, widely use in India as the technique of relief from stress and for improvement in physical and psychological health and wellbeing. Individuals oriented spiritually through practicing yoga which manifest in behaviour and attitude, ultimately caused to maintain peace and harmony within individual and in the larger society. It can say that yoga is a philosophy of life as well as a science of healthiness.

Yoga is a discipline based on an extremely suitable science, which focuses on bringing harmony between mind and body. It is an art and science of healthy living. Yoga leads to a perfect harmony between mind and body, man and nature, individual consciousness and universal consciousness. Yoga helps to build up psycho-physiological health, emotional harmony; and manage daily stress and its consequences. Yoga is consideredone of the oldest forms of exercise and although there are many different styles, from gentle to rigorous, yoga practice generally involves stretching, breathing and a period of deep meditation.

A growing number of studies from the 1970s through to today, suggest that yoga can have a positive outcome for people managing symptoms of depression, anxiety or stress, among other benefits.

In facts, Harvard Medical School believes there is growing evidence that yoga practice is a relatively low risk, high-benefit approach to improving overall health.

Dr. Nevins Says Yoga's incorporation of meditation and breathing can help improves a person's mental clarity and calmness, increases body awareness; relives chronic stress patterns; relaxes the mind; centres attention; and sharpens concentration.Yoga integrates the mind and body focusing on balance, posture, deep breathing, stretching and relaxation (Tripathi&Bano, 2014). The body and the mind are in a state of constant interaction. The science of yoga does not dictate where the body ends

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Articles

Automation of Refrigeration Systems for Extending Shelf life of Fruits and Vegetables in Remote Areas for Economically Weaker Section

Charu Pathak, Shruti Vashist

PDF

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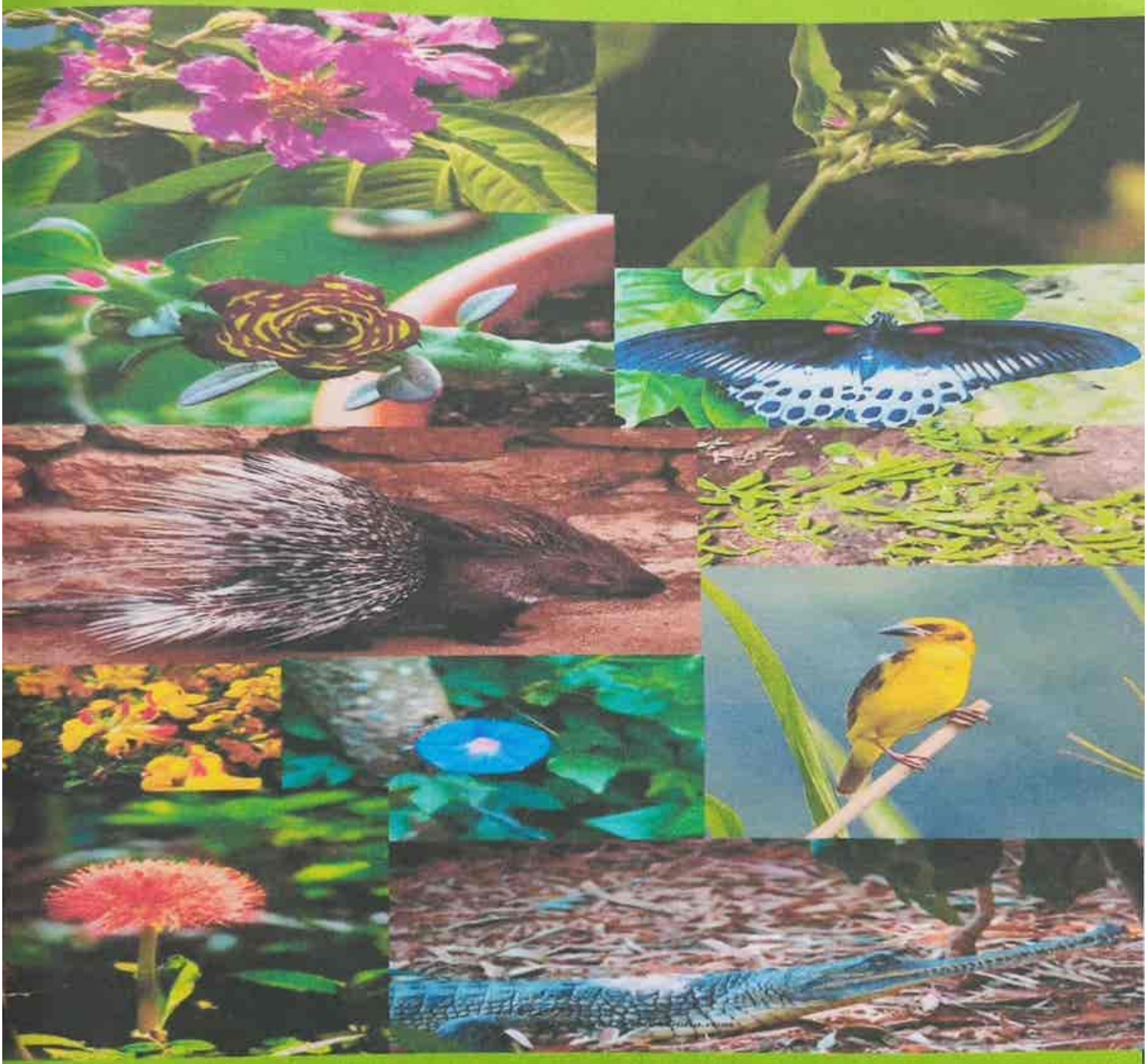
CONSERVATION OF WILD TAXA: PRESENT SCENARIO



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19. USE OF *POLYALTHIA LONGIFOLIA* AS BIOPESTICIDE: ADVANCEMENT TO TREAT FUNGAL DISEASE OF SOME MEDICINAL PLANTS

Manisha S. [illegible]
[illegible]are
Botany Department, Shri. Yashwantrao Patil Science College, Solankur, Dist Kolhapur, MS

Medicinal plants are rich in source of specific secondary metabolites, which are used to cure many diseases. For instance, *Adhatoda zeylanica* is one of the major medicinal plant, yielding several secondary metabolities i.e. alkaloids, flavonoids, saponins etc. in leaves. However, such important plant is suffered from infection of fungal pathogen i.e. *Colletotrichum capsici*, which causes damage to the active ingredients. Therefore, attempts have been made to control contamination by using different Acetone, Alcohol and Aqueous leaves extracts of biopesticide botanicals i.e. leaves of *Polyalthia longifolia*. It was observed that Acetone leaves extract showed maximum disease inhibition i.e. 100 %

EYWORDS Adhatoda, *Polyalthia logifolia*, *Colletotrichum capsici*, *Biopesticides*.

TRODUCTION:

chulse (*Adhatoda zeylanica* Medic), belongs to family Acanthaceae and is an portant medicinal plant of India. Its leaves yields several secondary metabolites like kaloids, flavonoids, saponins etc. which are used to treat several diseases like blood sorders, asthma, jaundice, leprosy etc (Seema et. al., 2010).

nfortunately, the leaves of this plant suffers from infection of fungal pathogens i.e. ollectotrichum capsici (Daniel and Purkayastha 1994), which results in loss of active gredients.

lence, present research work has been undertaken to overcome and management of edicinal plant disease. By keeping in mind that use of fungicide or pesticide are very angerous to ecosystem as they kill target and non target organism. Therefore, for voiding such loss, the use of biopesticides agents, particularly the leaves extract of *Polyalthia longifolia* was selected.

MATERIALS AND METHODS:

Fresh leaves of *Polyalthia longifolia* plant were collected and washed with distilled water for three times. 50 gm leaves were washed using 50 ml of Acetone with the help of mortar and pestle. The extract was filtered by using muslin cloth. Filtrate was then

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CONSERVATION OF WILD TAXA: PRESENT SCENARIO

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SEASONAL AND TEMPORAL DISTRIBUTION OF ZOOPLANKTONS COMMUNITY OF DUDHGANGA RIVER, KOLHAPUR DISTRICT.

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ABSTRACT:

In aquatic ecosystem, the zooplanktons species are considered as the bio-indicators of pollution. In present attempt, the assessment of zooplanktons community has been undertaken to understand the spatial and seasonal distribution. In this study, the water samples have been taken from six sampling stations of Dudhaganga River from upstream to downstream for qualitative and quantitative analysis of zooplanktons. Acquired results of analysis reveals that, total 28 species of zooplankton species were reported from 05 families such as Rotifer, Protozoa, Copepoda and Cladecera and Ostracods respectively. Among all families, the dominant family was Rotifer, which reported 08 (29%) zooplankton species. The Ostracods family was noted very less count (02) of zooplankton species i.e. 7% only.

In seasonal distribution, the Rotifer and Protozoa family was more dominant during summer than winter and monsoon season respectively. However, Copepoda, Cladocera and Ostracods families were noted high zooplanktons species during winter followed by summer and monsoon season. In diversity indices, the Simpson index, Shannon index and Equitability index of zooplanktons community was maximum during summer season followed by winter and monsoon respectively. Finally, this study concluded that, the zooplanktons species are significantly fluctuated according to spatially and seasonally and upstream stations of study area are reported less density of zooplankton species than the downstream stations. Present study may help in evaluating the stress, health and deepen understand of relationships between ecological factors and productivity and diversity of riverine ecosystem of Dudhganga River.

KEYWORDS: Zooplanktons, spatial, seasons, Diversity indices, Dudhganga River

INTRODUCTION:

In aquatic ecosystem, the plankton diversity plays a very vital role in transforming the energy flow among the aquatic environment. The productivity of aquatic bodies is mainly depending on the biological component and the biological facets transduce the energy via food

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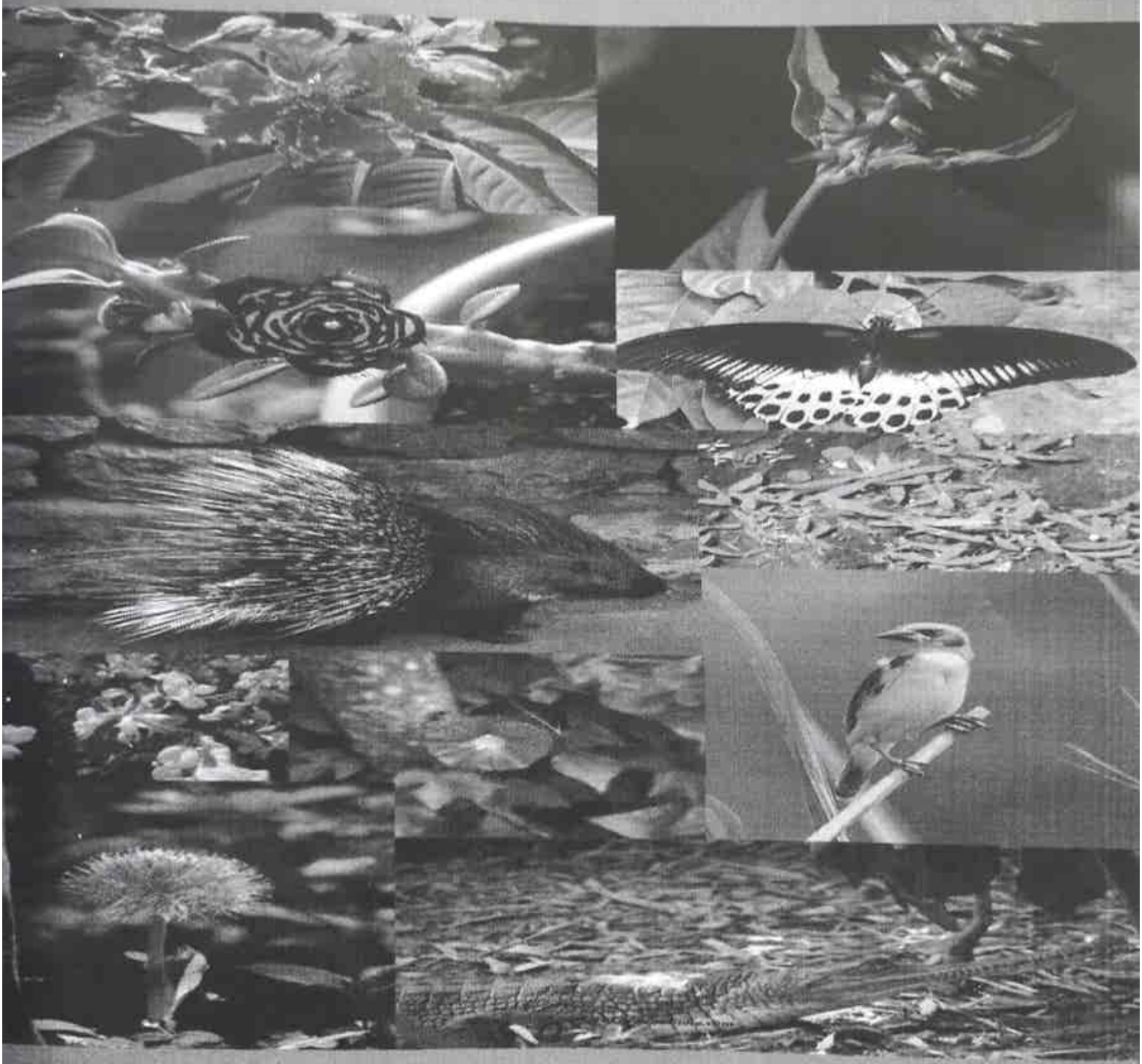
CONSERVATION OF WILD TAXA: PRESENT SCENARIO



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EFFECT OF NOISE POLLUTION ON OVERALL HEALTH OF FEMALE TOBACCO WORKERS WORKING IN TOBACCO PROCESSING UNITS AT JAISINGPUR. (KOLHAPUR, MH)

Wali, B. S. and Vishwajeet M. Lagade

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ABSTRACT

In any industries work efficiency and productivity are depending on workplace conditions and ergonomics. Occupational noise is major cause for noise induced hearing loss. More noise can cause damage to physiological and psychological health. Noise more than 90dB is considered as noise pollution. Machineries used in tobacco processing units at Jaysingpur produce noise which is more than 120dB. These tobacco processing units are operating without any innovative ideas and research. Low socio economic status and illiteracy makes these women to accept the workplace conditions. Present study investigates effect of occupational noise on overall health of Female tobacco workers. Dust produced during tobacco processing along with annoyance makes workplace more hazardous. Machineries are operated without using any protective equipments. Human ear are very sensitive to more sound more than 100dB. Protective equipments are provided to minimize the health effects and live comfortable life for female tobacco processing workers.

KEYWORDS: Occupational noise, Female tobacco workers, Noise induced hearing loss (NIHL)

INTRODUCTION:

Noise is loud and unpleasant or that causes disturbance. The objective of this paper is to evaluate noise pollution at different tobacco units at Jaisingpur, Maharashtra. Indoor air pollution is one of the major cause for discomfort at workplace. These Tobacco processing units comes under unorganized sectors and occupational noise is major health issue as health of female tobacco workers are concerned (Loukzadeh et al., 2014; Zamanian et al., 2013). More than 600 female workers are exposing to occupational noise pollution, Arezes and Miguel (2005). The machinery used in Tobacco processing produce hazardous noise and vibration,

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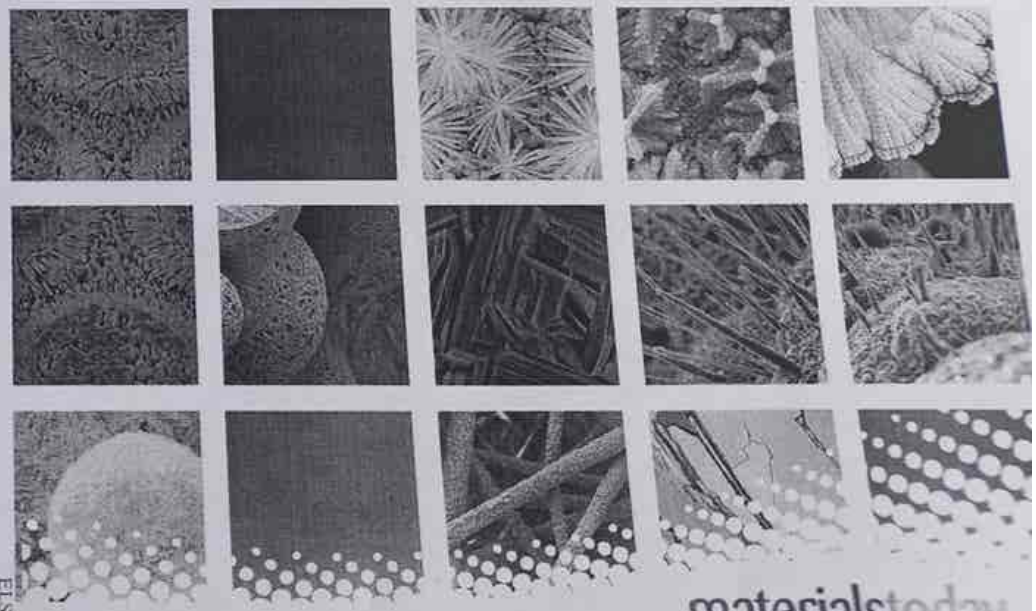

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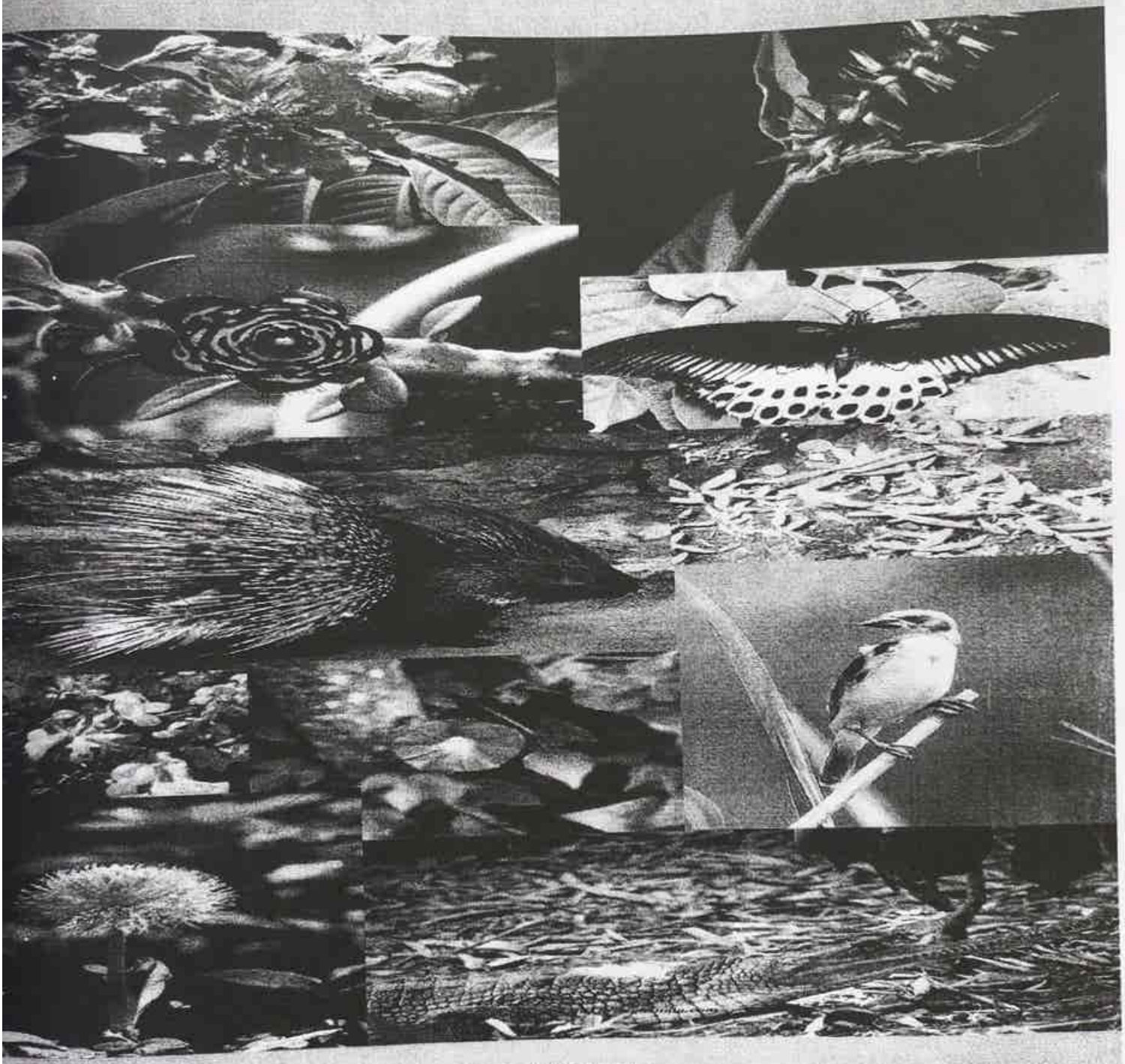

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MICROCLIMATIC STUDY OF *MOMORDICA CYMBALARIA*, HOOK. F., (CUCURBITACEAE) OF SOLAPUR DISTRICT.

S.V.Madhale[1*] S. P. Dorugade[1*] and G. G. Chougale[2*], P. S. Pawar[2*]

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ABSTRACT:

Ecological study of any individual species is called as "autecology". It includes interrelationship of the species or a population or all the stages of life cycle with climatic rather environmental conditions. Moreover, such type of detailed study of individual plant and its relationship with the environment has more importance in the applied fields of botany including conservation. Autecological study throws light upon aggressiveness and susceptibility of a species, under varying environmental conditions. Study of life histories greatly contributes understanding in the distribution, environmental responses and adaptation. In the present research paper more attention is given to microclimatic study of *Momordica cymbalaria*, Hook. f. (Cucurbitaceae) of Solapur district.

KEYWORDS: Microclimate, *Momordica cymbalaria*, autecology.

INTRODUCTION:

Microclimatic study plays an important role in determining the ecological patterns of plant communities (Behera *et. al.* 2012). The geographical foundation of soil prevailing in Solapur district is mainly of Deccan trap of volcanic origin. The soils are base saturated. In Karmala half of the soil is black and remaining red and light. The soils of Sangola and Mangalwedha are mainly light brown or grayish black. Madha tehasil has shallow soil having varying depth and quality. In Pandharpur the soil is grayish black. The district has soils with low water holding capacity. Therefore, crops in this area suffer the most during the draught conditions.

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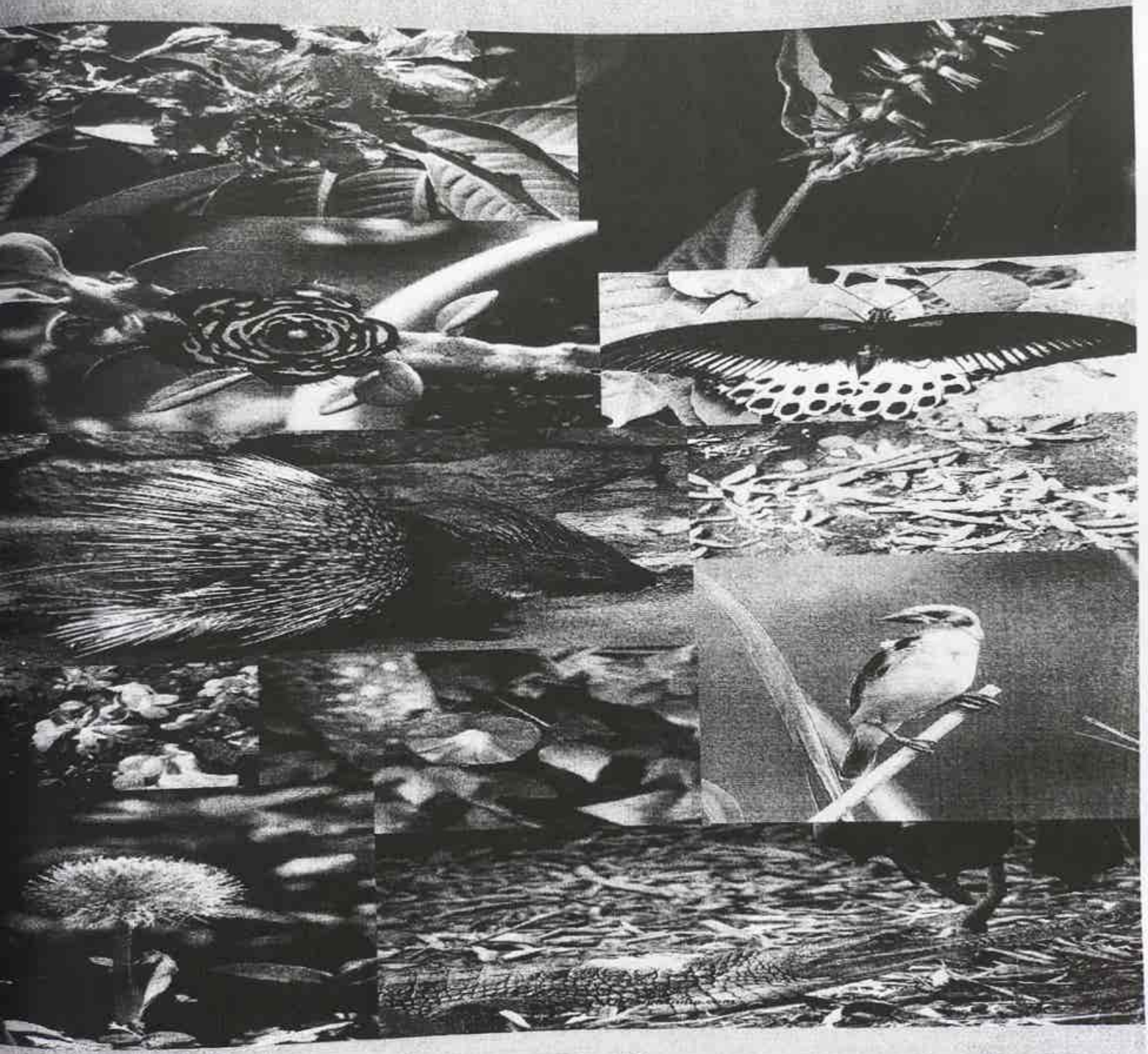

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SACRED GROOVES IN AND AROUND RADHANAGARI AREA

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ABSTRACT:

Maharashtra state is very famous for the presence of sacred groves. Radhanagari area is one of the famous sanctuary in Maharashtra state. It is one of the rich area of Biodiversity in Western Ghats. The number of medicinally potential plants are inhabiting in this area. These medicinally important plants were naturally protected by many temple areas which are scientifically called as sacred grooves. These sacred grooves playing important role in nurturing the surrounding flora and its habitat. These places contributed to the conservation of many endemic, rare, endangered, and relict species of that locality. The present research of work represents a brief survey of the role of temples and holy places in conserving and nurturing wild flora situated in and around Radhanagari area.

Key Words:

Sacred grooves, Deorais, Biodiversity, temples, Radhanagari.

INTRODUCTION:

Sacred grooves plays an important role in conservation of wild and endemic plants growing in their natural habitat. India is one of the spiritual country so most of the peoples believing in Gods. So by this name of God and beliefs peoples were restricting their enchrochement as well as destruction wild flora and fauna inhabiting in and around that area and ultimately gets the protection to these wild flora and fauna from that local community(Swamy *et al* 2003). In Maharashtra about 1600 sacred groves have been documented. Sacred groves are known as *deorais* or *devrais*, in the districts of Pune, Ratnagiri, Raigad, and Kolhapur. These areas are totally inhabited of a large variety of rare species with great biodiversity.

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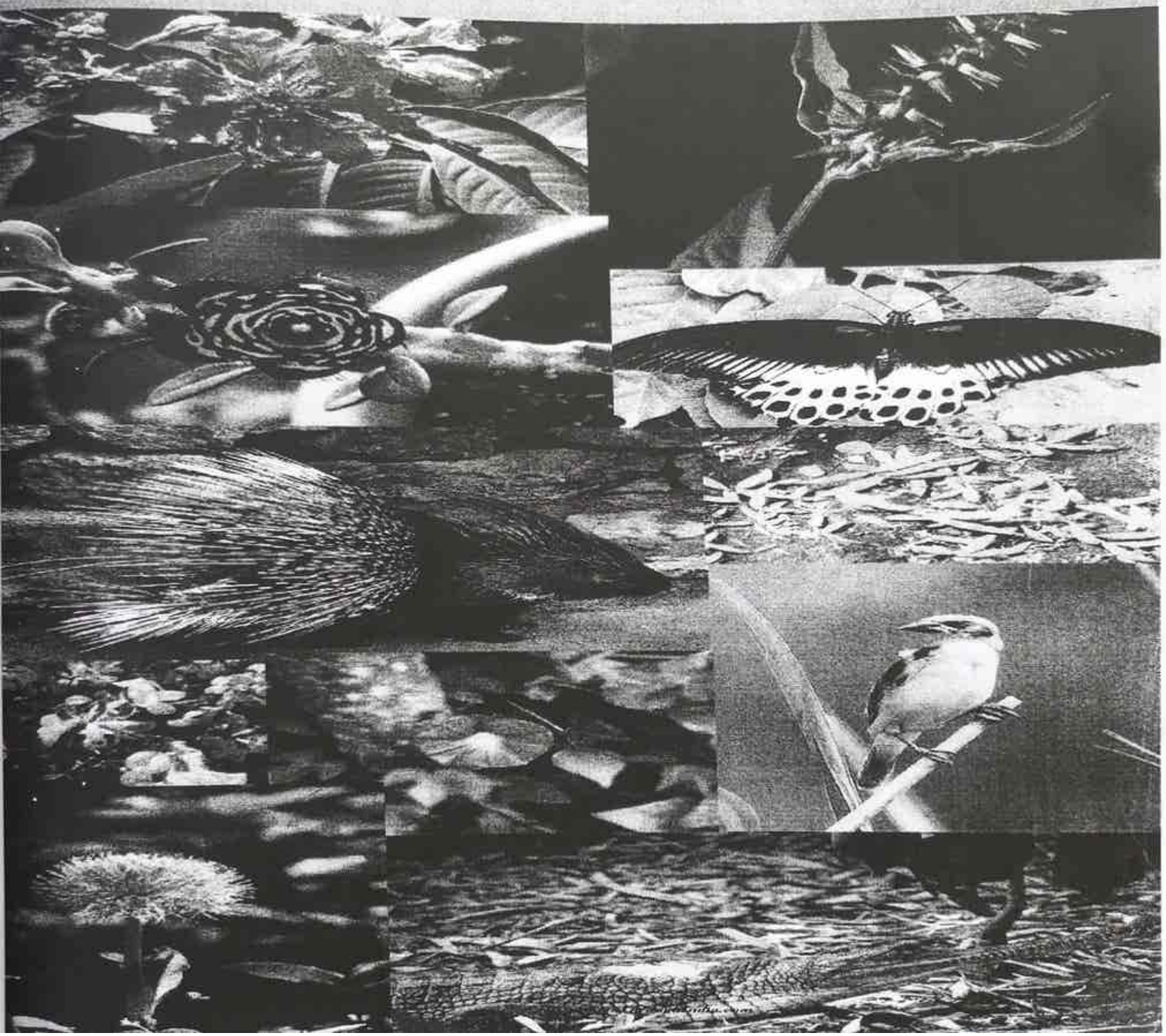

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ALLELOPATHIC EFFECT OF WEEDS EXTRACT ON SEED GERMINATION OF *SORGHUM VULGARE* (US- 312)

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ABSTRACT:

Weeds are the unwanted plants growing in the crop fields and competes with the crops for water, nutrients, and light. These weeds contains many phytotoxic chemical substances which suppresses the seed germination as well as growth of the crops. The allelopathic effects may be positive or negative in some crop plants in the field. About more than ten thousand chemicals were estimated to be produced by the plants to protect themselves against diseases, pests and other plants especially weeds. Such chemicals are known as herbicides. The commonly growing weeds in the paddy fields were extracted and their effect checked on seed germination of *Sorghum vulgare* (US- 312).

KEYWORDS:

Allelopathy, Weeds, seed germination, *Sorghum vulgare* (US- 312).

INTRODUCTION:

Weeds are the plants which are vigorously growing in the crop fields. These weeds contains many phytotoxic chemical substances which affects different physicochemical properties in plants mainly seed germination, growth, phonological period etc. DeCandolle (1832) was probably the first person to suggest the possibility that many plants may excrete something from their roots which may be injurious to other plants. Allelochemicals affects all functions of plant life including photosynthesis, respiration, mineral nutrition, transpiration, resistance and growth (Rice, 1984; Saxena et al., 2004). These phytochemical are also useful to produce toxic nature against diseases, pests, and allelopathic effects growth of other weeds. Weeds are the most aggressive, troublesome and undesirable element of the world's vegetation and cause

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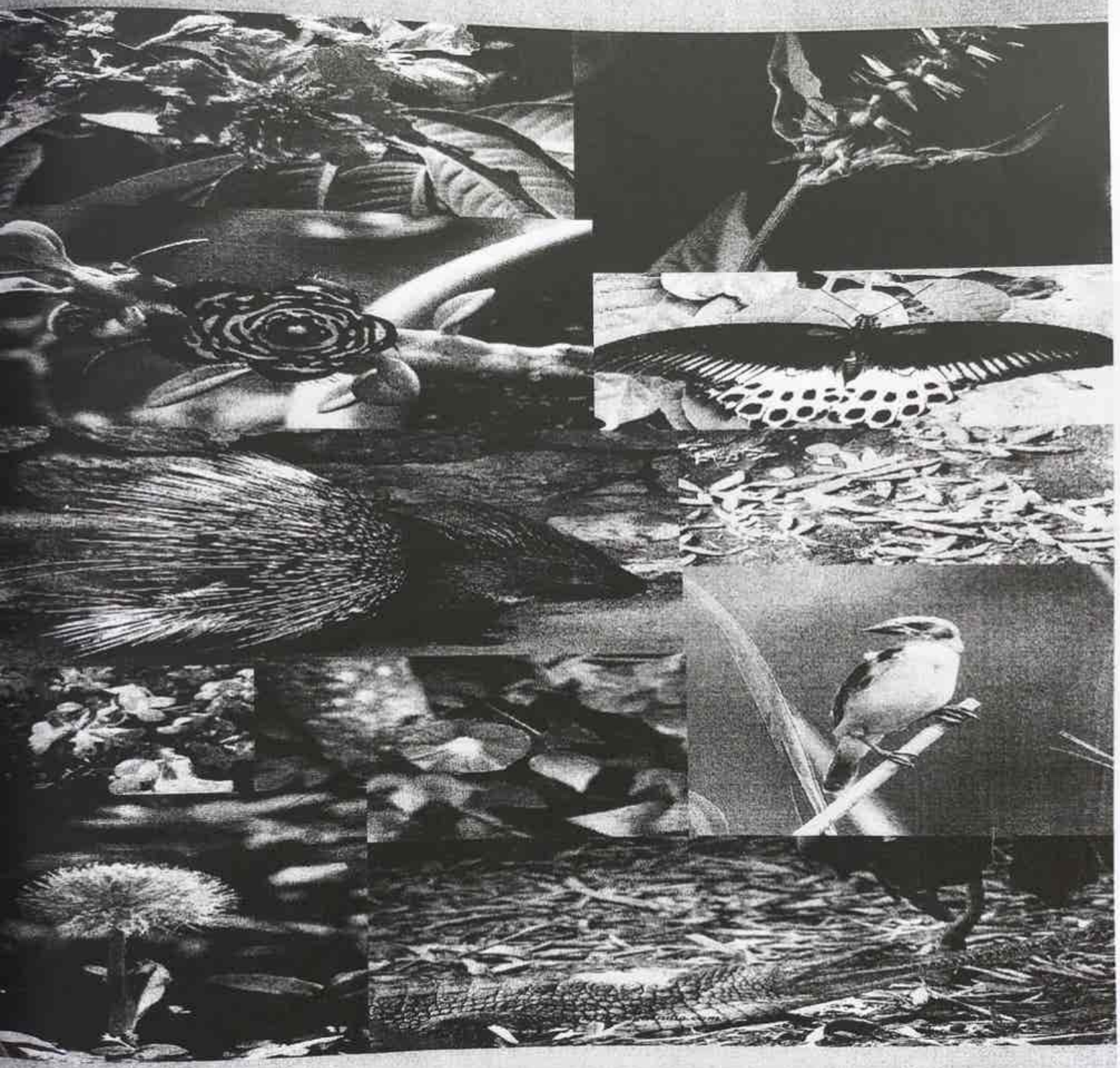

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SEED GERMINATION IN *CASSIA FISTULA* LINN. BY MECHANICAL METHOD

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ABSTRACT:-

Seed dormancy is one of the abnormal physiological characteristic found in few angiospermic plants. This seed dormancy in turn affects to decrease the size of population. Seed dormancy in *Cassia fistula* Linn, investigated by the physiologists. So during the present research work cheapest and the efficient experimental method is followed to break the seed dormancy present in *Cassia fistula*.

Key words :-

Seed Germination, Dormancy, mechanical method, *Cassia fistula*.

INTRODUCTION:-

Cassia fistula Linn. is one of the ornamental and medicinally important plant belongs to the family Fabaceae . The plant is commonly known as "golden shower plant". It flowers during August –June every year & produces large amount of seed but the seed germination percentage is low in the nature. The seed dormancy in the species is also reported by number of scientists Nalwadi *et.al*, (1977) , Babely & Kandya (1988) ;Babalola *et.al*(2014). So during the present research work is focused on seed dormancy and how it is possible le to break. The seed dormancy was broken by following simple and cheapest mechanical method for early germination

MATERIALS AND METHODS:-

The number of well dried pods of *Cassia fistula* collected from wild plants in Western Ghats of Radhanagari area. The pods broken and seeds are kept intact with its surrounding cake .The simple mechanical method is followed to break the seed dormancy. Different sets are prepared with different methodology some seeds are kept intact with cake, some are without cake, some seeds are removed from cake and nicked and in some seeds total seeds coats were removed .By

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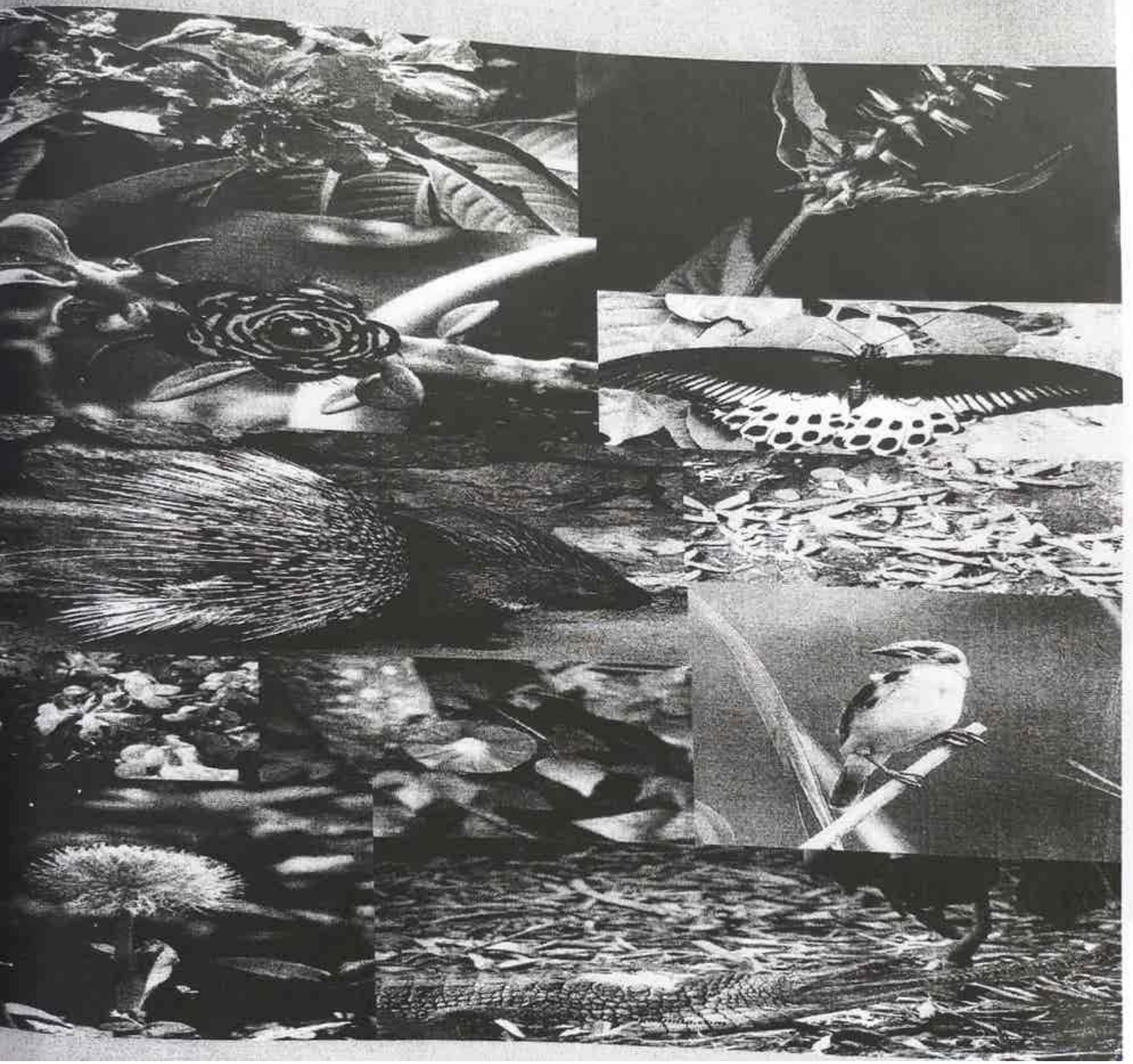

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ARTOCARPUS HETEROPHYLLUS LAM. : A PROMOSSING NATIVE PLANT SPECIES OF WESTERN GHAT AND KONKAN REGION.

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ABSTRACT

Jackfruit is one of the important horticultural plant species in Konkan region of Maharashtra and Goa. Recently it has brought under cultivation but most of the produce is coming from wild stock. In this region people take care of naturally growing trees. Konkan region of Maharashtra is famous for 'Jackfruit Culture' as people maintain various varieties of jackfruit and use them for various purposes. Jackfruit recipes of this region are famous and eaten very commonly.

INTRODUCTION:

Bringing wild fruit plants under commercial cultivation is important from national economy point of view. India is the second biggest producer of the fruit in the world and is considered as the motherland of Jackfruit. In India population of jack tree is distributed in many states. But western ghat is considered as its centre of origin. In the present piece of work observations are recorded on natural stock of the species from Sindhudurga District of Maharashtra.

MATERIAL AND METHODS:

Number of villages of Sindhudurga District and an adjoining area of western ghat was visited and screened for occurrence as well as utilization, management of jack trees and fruits. Some of the key observations are recorded in this paper.

RESULTS AND DISCUSSION:

Jackfruit varieties:

Plants are most important biotic component of ecosystem, special attention must be given to research on improvement of plant growth and utilization of plants for sustainable development. This book comprises of research and review papers on various plants; on several aspects like Hypolipidemic activity, Biocontrol agent for sustainable environment, Antioxidant potential of wound healing plants, Effect of polyherbal preparation, Micropropagation, Natural regeneration, Carbon sequestration potential of tree species, Impact on rearing performance, Induced variations in quantitative traits, Effect of potting media, Effect of Azospirillum strains, Use of Gliricidia, Growth and sporulation of Alternaria, Effect of biomethaneted spent wash along with bio-compost, Ectoparasite control, Effect of zein protein coating, Phytochemical Effect, Effect of biofertilizers, Effect of garbage bio-pesticide, etc. written by professors and researchers. This book is useful for researchers, academicians, students, nature lovers, environmentalists, government officials and policy makers etc.

Dr. Pratap V. Naikwade is editor and one of authors of this book. He has completed post doc research from USA. He is author of several research papers and books, worked as invited speaker in International Conferences, recipient of Young Scientist, Outstanding Researcher, The Environmentalist and other Awards also got international recognition.

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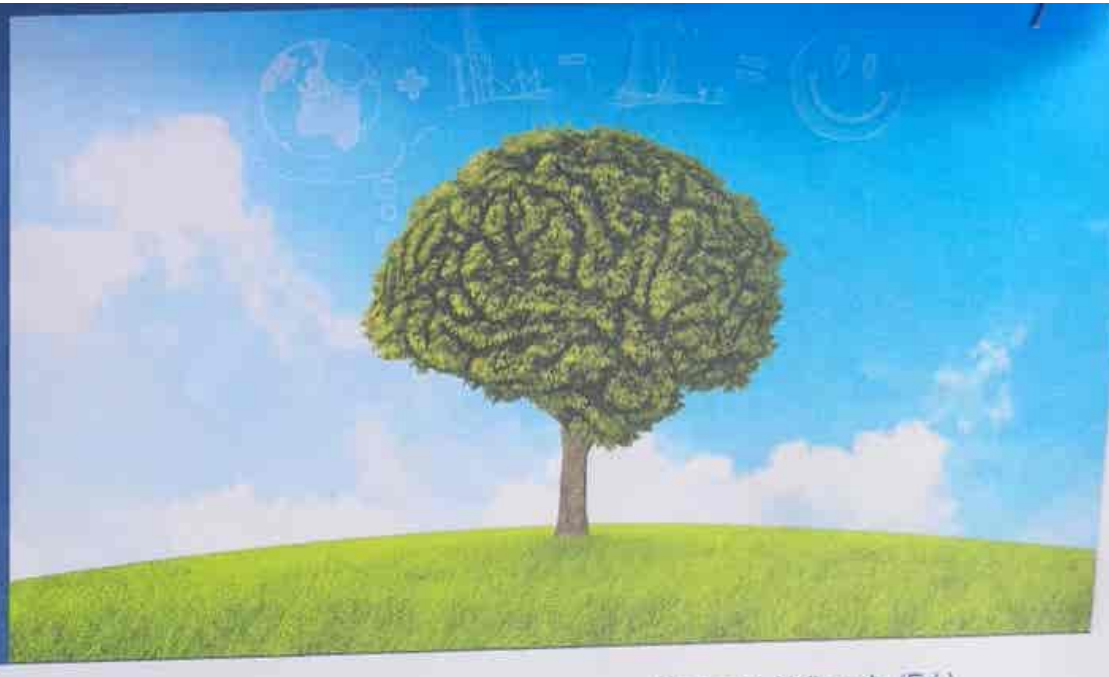

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CHAPTER 3

Datura stramonium as Biocontrol Agents for Sustainable Environment

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Abstract

Nowadays, weed plants are considered to be rapidly developing natural remedy as biological control agents against several fungal pathogens. They may help to maintain the quality of crops, medicinal plants and reduce the undesirable usage of chemical pesticides and toxic chemicals. Use of weed plants as biological controls is the important tool not only to overcome the fungal contaminants but also to develop sustainable agriculture. The present study deals with the bio-control activity of leaves of *Datura stramonium* in various organic solvent concentrations against fungal contaminants of medicinal plants *Alternaria alternata, Colletotrichum capsici* and *C. Dematium*. Among all the studied leaves extracts concentrations acetone was found to be more effective as compared to alcohol and aqueous.

Key words: *Alternaria alternate, Colletotrichum capsici, Collatotrichum dematium, Datura stramonium*

Introduction

Ayurveda is an ancient health care system in India, which dates back to about 5000 years ago. More than 700 plants were described in Charaka Samhita and Sushruta Samhita. This medicinal system is widely practiced in other parts of the world as a form of complementary medicine.

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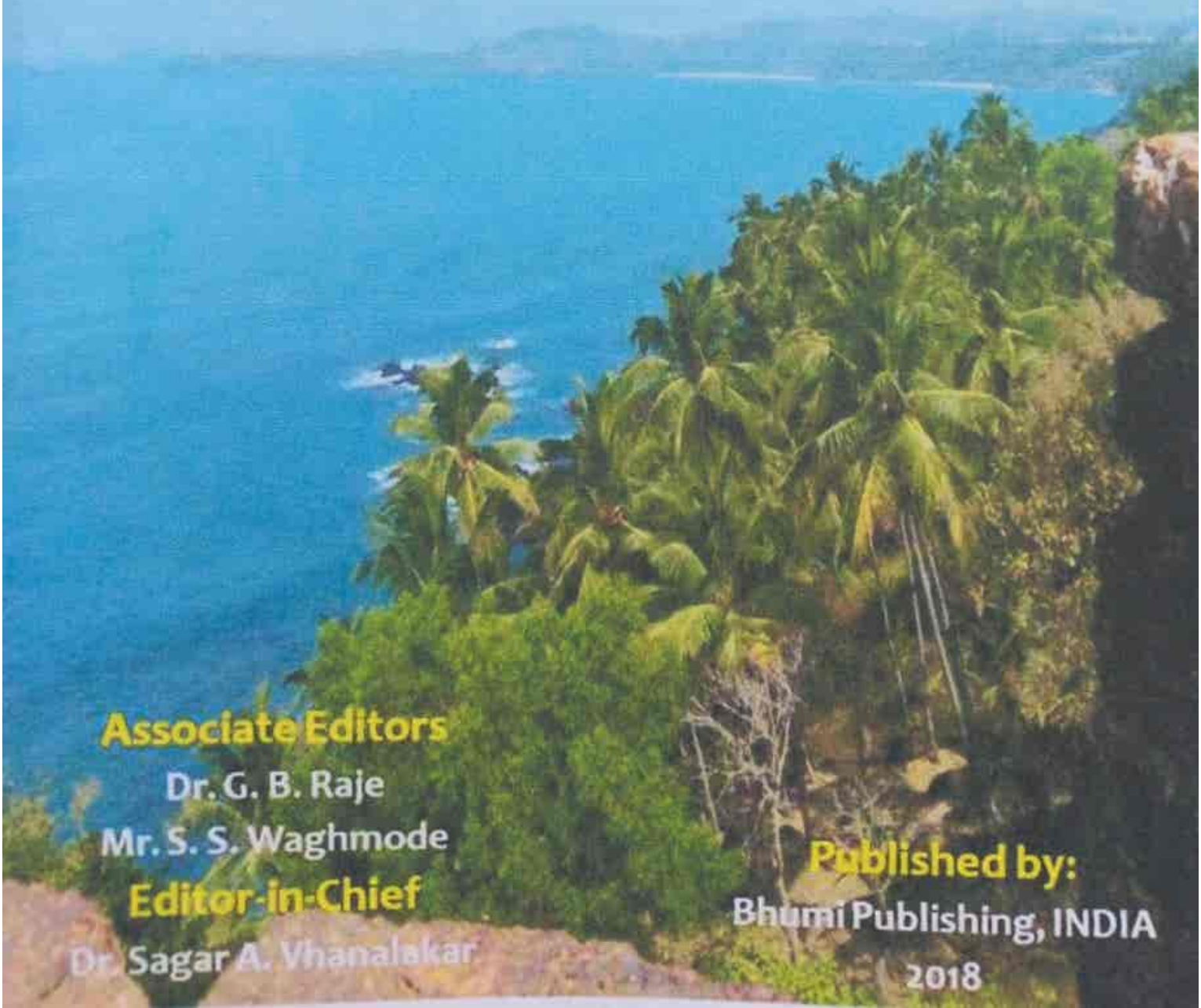

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Content

TRADITIONAL METHOD OF LIME PREPARATION FROM DEAD MOLLUSCAN SHELLS, AT RATNAGIRI COAST, MAHARASHTRA

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ABSTRACT:

Traditional methods and techniques are vital as point of ecosystem due to its sustainable utilization of limited natural resource. Traditional practicesare transmitted from generation to generation among community and such techniques are used by inhabitant community for their livelihood. In this paper, we have documented the how coastal community of Juve village Ratnagiri coast prepared the lime by traditional technique. During investigation, we have visited to lime processing units of Juve village and collect the detail information oftraditional technique from owner and labour through individual interview and special questionnaire. After survey and discussion, we reported total 09 lime processing units at Juve village, in which 02 lime processing were carried out on large scale whereas 07 were on small scale.In this lime processing unit, the lime making method is purely based on old-age knowledge andlocally available pre-requisite materials. In limeprocessing technique, initially they collect dry shells from various habitats of Ratnagiri coast. Collected shells were dry in open sunlight, than it was used for burning in heating chamber or pit. The burned shells were kept for cooling, after that burned shellswere thrashed with cudgel in to powder. Through straining the lime powder convert in very fine lime. Such lime has wide application and used on large scale. Through this traditional method, the coastal community is getting livelihood and employment opportunity.

KEYWORDS: Molluscan dead shells, Traditional technique, Lime, Ratnagiri.

INTRODUCTION:

Along coastal area's the aquatic organisms like fishes, prawns, clams, mussels, oysters etc. are the chief source of food and revenue to the coastal rural communities. Therefore, the inhabiting rural people are mainly performing various fishing practices and fished the aquatic resources.

ALLIUM CEPA AN EFFECTIVE REMEDY TO MANAGE LEAF SPOT DISEASE OF *ADHATODA ZEYLANICA* MEDIC

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ABSTRACT:

Adhatoda zeylanica (Adulsa) is an important medicinal plant belonging to family Acanthaceae. It has lots of medicinal uses to cure asthma, bronchitis, respiratory disorders, piles, rheumatism, dysentery, diarrhoea etc. However, due to contamination of some fungal pathogens its biochemical contents reduce in large quantity. The present work deals with the management of leaf spot disease caused by *Alternaria alternata* and *Colletotrichum capsici* to Adulsa by using various extracts of *Allium cepa*. It was found that acetone leaves extract was most inhibitory than other leaves extracts studied.

INTRODUCTION:

Adhatoda zeylanica Medic. is an important medicinal plant belongs to family Acanthaceae. In the Unani and Ayurvedic medicine systems, the entire plant is used. The plants contents like tannins, flavonoids, alkaloids, saponins, reducing sugars, minerals, etc makes the plant medicinally important [1]. This important medicinal plant is affected by different fungal pathogens, which decreases reduces the medicinal as well as market value of plant [2]. Hence, the present investigation is carried out to know the fungal pathogens infecting Adulsa viz. responsible for decrease in active ingredients of the plant. Efforts were made to analyze the changes in biochemical content due to fungal diseases. Attempts were also made to control the different fungal pathogens causing diseases.

MATERIALS AND METHODS:

Effect of acetone, alcohol and aqueous leaves extract of different plants on growth of fungi:

To determine the effect of acetone, alcohol and aqueous leaves extract *Allium cepa* plant leaves were used.

Preparation of leaves extract:

For the preparation of leaves extract, 50 gm leaves were washed by using 50 ml of Acetone with the help of mortar and pestle. The extract was filtered by using muslin cloth. Filtrate was then centrifuged at 5000 r.p.m. for 10 min at 4 °C. Supernatant was collected and treated as 100 % i.e. stock

Vapor chopped MgO thin film optical waveguide

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Abstract

In optoelectronic devices, optical signal transmission gets more affected due to the use of materials and their properties. Here, vacuum evaporated magnesium oxide (MgO) thin films were studied for optical waveguide application by measuring their optical signal transmission loss (OSTL). Novel vapor chopping technique (VCT) was used to prepare vapor chopped (VC) MgO thin films and properties of those films were compared with as deposited or non-chopped (NC) films. Various oxidation temperatures (573, 623 and 673 K) and thin film thickness variation effect on the OSTL were studied. The VC MgO thin film waveguide showed a smaller transmission loss as compared to the NC MgO thin film waveguides. An AFM study showed that, surface roughness of VC thin films was lower than the NC MgO thin films and it increases with increase in oxidation temperatures.

Keywords: Thin films, Oxide materials, Vapor deposition, Optical waveguide, Optical transmission loss.

1. Introduction

In this nanotechnology based display era, optoelectronic devices like mobile, LCD, LED TV etc. have been made a firm place in our day-to-day life. Such device fabrication, circuit interconnections plays a vital role. Thin film based planar optical waveguide would be the appropriate connector for such devices [1]. The performance of a waveguide is based on the difference between the input signal transmission and received output. This difference is an optical signal transmission loss (OSTL) during transmission. The minimum transmission loss through a waveguide result in a good waveguiding performance, such transmission loss depends on the material's properties, i.e. chemical composition, surface morphology, surface roughness, material's growth structure (e.g. columnar growth) and the defect formation, i.e. voids, pits etc. [2-6].

Magnesium oxide (MgO) has high optical transition, band gap, has a high secondary electron emission coefficient, good adhesion to glass substrate properties. Due to these interesting properties it is applicable in advance optoelectronic technology for various purposes; such as substrates for device fabrication, as a protective layer in plasma display panel (PDP), optical switches etc. [2-6]. MgO consist refractive index 1.62 nearer to the glass (1.5) fulfill the basic requirement of optical waveguiding.

In this article, we have studied the OSTL using two prism coupling method. The effect thin film thickness (300, 450 and 600 nm) and oxidation temperatures (573, 623, and 673 K) on OSTL properties of vapor chopped (VC) and non-chopped (NC) MgO thin films were studied. The effect of the vapor chopping technique (VCT) was investigated.

2. Experimental

Magnesium oxide thin films have been prepared by thermal oxidation (in air) of vacuum evaporated VC and NC magnesium films; deposited onto glass substrate under vacuum of 10^{-5} mbar. The pure (99.98 %) metallic

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