"Education through Self Help is our Motto"- Karmveer

Rayat Shikshan Sanstha's

Arts Science & Commerce College
Ramanandnagar (Burli)

Tal: Palus, Dist: Sangli (M.S) India. 416 308.

NAAC Accreditation "A" Grade with CGPA 3.02

Department of Zoology, Botany

&

Internal Quality Assurance Cell (IQAC)

Jointly Organised

One Day National Conference

CONSERVATION & BIODIVERSITY BANKING
ABSTRACT BOOK

CONSERVATION
&
BIODIVERSITY BANKING

Editors

Dr. T.S. Bhosale

Mr. A. B. Mane

RAYAT SHIKSHAN SANSTHA'S

A.S.C College, Ramanandnagar (Burli)

NAAC Accreditation 'A'Grade with CGPA 3.02

Department of Zoology & Botany

A.S.C College, Ramanandnagar (Burli)

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Dr. Karmveer Bhaurao Patil

Founder, Rayat Shikshan Sanstha, Satara

PREFACE

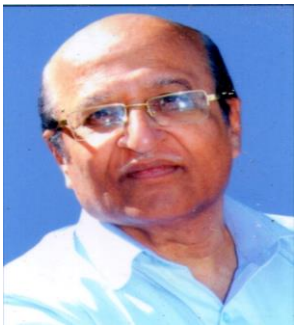
We are pleased to come out with this text "Conservation & Biodiversity Banking". This Abstract Book is the outcome of the National Conference on "Conservation & Biodiversity Banking" 2020 held on 17th January, 2020. We have introduced the Keynote Address: "Role of Educational institutes in Conservation of Biodiversity", "Owl Conservation: Science behind Superstitions". "The dons of under-world! Masters of Subterranean world". Also we have selected thirty nine research articles for the inclusion in the text, after they were peer reviewed by imminent researchers and professors. Many of the articles are dedicated towards the conservation of biodiversity to maintain natural balance of the ecosystem, Bioinformatics in modern taxonomy, Various Algal biodiversity etc.

Readers would agree that no science text can be published without scientific inputs from the researchers. We sincerely express our gratitude to the contributors and reviewers of the articles which are selected on merit for the inclusions in this book.

Ramanandnagar, **Dr. T S Bhosale**

January 17, 2020 **Mr. A B Mane**

MESSAGE



Dr. Anil A. Patil
Chairman,
Rayat Shikshan Sanstha, Satara.

I am very happy to welcome you for the one day National Conference on "Conservation and Biodiversity Banking" (NCCBB – 2020). Biodiversity conservation has become a key issue. It is unfortunate, but not too late. In a particular biodiversity conservation is improving daily, between sadness and hope. I am sure that, due to organising such conferences we are going to create awareness, discover, the latter will dominate.

This conference will provide a robust and dynamic platform to meet the people, to exchange the ideas, and to increase the network. This event aims to promote the restoration of a spectrum of degraded ecosystems to stem the loss of biodiversity.

I congratulate the organizers for both the vision and ambition in pulling together this conference with so many topics being treated, with such impressive participation and with fantastic fellow speakers.

So let's be a part of beautiful and exciting biodiversity at Kirloskarwadi.

Dr. Anil Patil

(NCCBB – 2020) ISBN No.: 978-93-5396-671-3

MESSAGE

Prin. Dr. B. K. Karale
Secretary,
Rayat Shikshan Sanstha, Satara.

I am happy to known that the Arts, Science and Commerce College Ramanandnagar (Burli) is organizing a one day National Conference on "Conservation and Biodiversity Banking" on 17th January, 2020.

Biodiversity, is broadly defined as the variety of life on Earth. Almost two million species have now been identified worldwide, but the actual number of species is estimated to be between 10 and 30 million. This vast amount of biodiversity is an essential provider of ecosystem goods and services. However, despite the important role biodiversity plays in our lives, it is currently experiencing severe genetic erosion due to our unsustainable activities. The exponential loss of genetic diversity throughout the world has led to initiatives to conserve biodiversity inside (in situ) and outside (ex situ) their natural habitats. Particularly the latter is an important strategy, since very often original habitats are also **under threat**.

I congratulate the Principal and Staff of the college for organizing National Conference on the important topic. I am sure that the conference will provide a good platform for valuable interactions, discussions, research based knowledge among the delegates.

I wish the grand success to one day national conference on "Conservation and Biodiversity Banking".

We look forward to welcoming you in Kirloskarwadi.

Dr. B K Karale

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MESSAGE

Prin. Dr. V. S. Sawant
Joint Secretary,
Rayat Shikshan Sanstha, Satara.

I am honoured and delighted to invite you in the name of the Organising Committee to participate in one day National Conference on "Conservation and Biodiversity Banking" on 17th January, 2020.

Biodiversity, known as a variety of all existing organisms, is an essential component of nature, which ensures the survival of the human race by providing us food, fuel, medicines etc. However, the biodiversity richness depends on the geographic region of the World, climatic conditions and anthropogenic activities.

The Conference would also be an exciting opportunity, especially for students, doctoral and postdoctoral fellows, to present their research studies and get acquainted with the latest achievements and comprehensions in different fields of biodiversity and its conservation. Interesting and encouraging lectures will be presented by world-class academics and experts that cover a range of disciplines related to biodiversity

On behalf of the Organizing Committee and in my own behalf I wish everyone a successful and prosperous participation at the National Conference on Conservation and Biodiversity Banking 2020 and a pleasant stay at Kirloskarwadi.

Finally, I wish great success for the said conference.

Dr. V S Sawant

MESSAGE

Prin. Dr. L. D. Kadam
A S. C. College Ramanandnagar (Burli)

It gives me immense pleasure to warm welcome to all the academicians, research scholars, students, scientists. Who are participating in the one day National conference on Conservation and Biodiversity Banking organized by Department of Zoology and Botany on 17th January, 2020.

There are strong ethical and moral arguments for protecting biodiversity. Nature is also deeply embedded in our culture and our history. But, on their own, these considerations have not been sufficient to protect nature. There is also an increasing recognition that the benefits that human society derives from nature have a very high value and that long-term human wellbeing is dependent upon the continued delivery of these benefits.

I am confident that the conference will make available platform for discussion, interaction on the conservation of animal plant biodiversity. It is urgent need to conserve the plant and animal biodiversity for the sustainable maintenance of the natural climatic conditions. Through this conference the society will know the diversity of plants and animals and species are endangered and under threat.

Make biodiversity conservation a priority for future communication programmes. It is essential to engage the public at all levels – including through the education system – in order to build an understanding of "why biodiversity matters".

Lastly, I would like to thank all of the conference participants for their contributions which are the foundation of this conference.

Dr L D Kadam

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WELCOME MESSAGE

Mr. A. B. Mane
Convenor, NCCBB - 2020

Ladies and Gentlemen, colleagues and friends.

It is a great honour for me to welcome you all on the occasion of the National Conference on Conservation and Biodiversity Banking - 2020 here in Kirloskarwadi, India.

NCCBB – 2020 provides a platform to the global community of restoration professionals that includes researchers, ecologists, students, environmentalists, coversationists, botanists, zoologists, entomologists, and oceanographers who are actively engaged in the ecologically sensitive repair and recovery of degraded ecosystems by utilizing a broad array of experiences, knowledge sets, and cultural perspectives.

I am an optimist. I don't think anyone can go into my line of work and not be an optimist! I see the 2020s as the decade when humanity will rise to the challenge. I see the 2020s as the decade that will realize that carefully crafted common vision for 2030. I see the 2020s as the decade that will change the world, for the better.

I come to you with some basic messages. They really are rather simple. But in their simplicity, they have been much overlooked. Because human society has taken nature for granted for so long. We assume that, that season will follow season; that our fields will be pollinated and yield bountiful harvests; that the soil will be fertile and that the rains will come. We assume that this very fine web of life on which our very existence depends will remain unaltered. Even as we carelessly pave over, extract, emit, cause effluents, fragment and exterminate.

So in their simplicity, perhaps my messages will touch a note of deeper meaning.

- That biodiversity is critical for human existence. But biodiversity is also under huge threats globally. As we destroy biodiversity, we not only lose species, we also lose the very foundation of our existence.
- That nature is very forgiving. Give nature half the chance and it will bounce back. Basically, conservation works.

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- That to secure life on Earth, we need bold transformative action, underpinned by sound science and effective policy.
- And so my message concerns what we must now do. The actions we must take in the context of the post 2030 goals; the things we must do for nature.
- That brings me to my final message.

The planet is in the midst of the Earth's sixth mass extinction. And we are the driving factor. But here is the good news. Because it is a game changer and it is particularly relevant here today.

We can change all of this.

I thank you.

Mr. Abhijit B Mane

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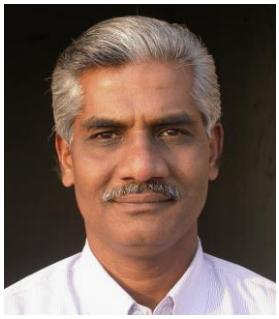
Key Note Address



Role of Educational Institutes in Conservation of Biodiversity.

S. R. Yadav,

INSA Senior Scientist, Department of Botany, Shivaji University, Kolhapur-416 004.

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The green-ward covering of mother earth is the true matrix of human life. To a man and every species of animals, there is nothing essential than plants on this earth. Man has intricate fascinating physical, emotional and spiritual relations with biodiversity. There is tremendous diversity of life on earth and angiosperms is the most dominating and useful group of all terrestrial ecosystems of this planet. Mother earth has amazing diversity of life forms and flowers as well. India is blessed with great diversity of habitats supporting diverse type of ecosystems, flora and fauna. India is one of the 17 mega-diverse countries with 3 hot-spots of biodiversity supporting over 18700 species of flowering plants alone.

Biologists of 21st century have great responsibility of documenting, describing, naming and more importantly bio-prospecting and conserving our biodiversity. Botanists have the knowledge of plant diversity, their occurrence, importance and field status of various species. Botanists is the community with whom major and critical information about plants is available. This information is of crucial importance both in utilization and conservation of plant diversity. However, most of the persons trained in botany are engaged in their day-to-day activities and seldom think and contribute as botanists of 21st century-the century which is known for mass extinction. If all the botanists of our country give serious thought for plant conservation, most of the plant species can be conserved. There may be more than one lack persons trained in botany in this country and we have just total of 18-19 thousand species of flowering plants. If each one of us adopt one species and work on various aspects including

conservation, we can conserve almost all the plant species of Angiosperms. Botanists can provide yeoman service to plant diversity conservation.

Educational institutes like Schools, Colleges, and Universities have strength of talented, hardworking, enthusiastic, passionate, motivated students who can be trusted for conservation of our biodiversity. Students is the strength of any Botany teacher and through the force of these students, we can conserve maximum plant diversity. Teachers, students and supporting staff of Botany department of Shivaji University have developed a Lead Botanical Garden (LBG) which presently supports more than 1200 species of plants. The garden is playing an important role in conservation of plant diversity of especially Western Ghats. Department of Botany is contributing to conservation through raising saplings, planting them and providing the saplings to anyone interested in plantation. This should form a guideline for other educational institutes. The present lecture narrates the role of Botanists in 21st century.

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PLENARY TALK - I

Dr. Satish Pandey
Ela Foundation, Pune.

Owl Conservation: Science behind Superstitions

ABSTRACT:

Owls are nocturnal raptors. Owls have been shrouded in mystery and superstitious beliefs since ages. They have been misunderstood and abused and have been condemned as ghosts or creatures of ill omen. Owls continue to be killed, trapped and used for falsely attributed medicinal purposes and for black magic. As per a TRAFFIC India report as many as 70,000 owls were killed or trapped in one year alone for trade or superstitious beliefs.

Owls have forward facing eyes and they look similar to humans. They can rotate their heads in two dimensions and the degree of rotation causes fear. Owls have eerie calls and they fly without making any noise due to silent wings. Owls are often seen near burial grounds and cemeteries and continue to be associated with death. Owls have unique hearing abilities and they can 'see' beneath the snow and hunt mice and rats. All these acts arouse fear in the minds of common man.

Owls have several sensory modifications. Recent neurobiological studies using state of the art equipment like fMRI have explained several astonishing behaviour of owls that have astounded mankind. Ecological studies on owls show that they largely consume rodens species that are agriculturally pests. The owls play an important role in agronomics in a predominantly agricultural society like India and hence there is a need to understand the owls and protect and conserve them. In the present day scenario, where pesticides and other harmful chemicals are proving to be of a limited value in the control of harmful crop diseases and pests, the concept of Integrated Pest Management is taking hold in the minds of farmers. Owls play a major part in biological control of agricultural crop pests.

In this presentation I shall deal with the 'Science Behind Superstitions' related to owls and highlight various physiological, anatomical and behavioural adaptations of owls to live an

effectively useful life as a nocturnal predator. I shall also highlight some threats and suggest conservation measures for the protection of owls. I shall conclude by suggesting the efficient role that the biologists and researchers can play by taking their research findings to the common man to establish the much needed and vital connect between peoples participation in nature conservation by citing an example of the 'Owl Conservation through Public Participation' initiative taken by Ela Foundation by using 'Indian Owl Festival' as an effective conservation tool.

Prof. Dr. Satish A. Pande
MD, DNB, PhD, FMASci., FLS
(Director, Ela Foundation; Interventional Radiologist and Sonologist)

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PLENARY TALK – II

Dr. Varad Giri,
Director,
Foundation for Biodiversity Conservation, Pune.

The dons of under-world!

Masters of subterranean world.

They are rarely seen, they are difficult to find, they are poorly studied and they are not good looking, still you wish to work on them? Many of my friends and colleges were concerned about my choice. The literature search was not so encouraging as many scientific publications considered them rare and there were no popular articles on them. Interactions with experts and nature enthusiasts were equally discouraging as many told me that they have never or rarely seen them. But, I saw many unanswered questions, which intrigued me to stick to my decision. I considered all these hurdles as opportunities, which was true. The subsequent actions, mostly based on lack of information, hence, not governed by preconceived notions, unearthed many mysteries, and the quest is still on. And my decision was to do research on the caecilians of the northern Western Ghats.

Now you must be wondering, what is caecilian? I too had this question when I heard this name for the first time after joining the iconic Bombay Natural History Society (BNHS) in 1999. Prior to this, I never knew that any animal with this name exists. I visited the library of BNHS to know more about caecilians of India but there were only a few publications on this group. Notable among them was series of papers published by Dr. G.K. Bhat and a monograph, 'Gymnophiona (Amphibia) of India - A taxonomic study' by Drs. R.S. Pillai and M.S. Ravichandran of Zoological Survey of India, published in 1999. This comprehensive monograph, which was mostly about the taxonomy of then 16 known species of caecilians from India was a bible for me. I was equally fortunate to study a few specimens of caecilians in the natural history collections of the BNHS. All the published literature also reinforced the notions mentioned earlier, caecilians are rare. Some publications discussed that caecilians prefer habitats with good tree cover, having loose soil with ample leaf litter. Some publications also mentioned that a few species are commonly encountered in coconut and areca nut

orchards. In 1999, only three species of caecilians were known from the northern Western Ghats and this low diversity was attributed to the lack of favorable habitats.

With this basic background, I started exploring the northern Western Ghats for caecilians in 2001. In that year, we manage to get one individual in Amboli, which was seen crossing road, amidst heavy rains in the midnight. This individual was identified by me as *Ichthyophis beddomei* based on its colouration, brownish caecilian with yellow stripe on both sides. Then I met Drs. Mark Wilkinson and David Gower of Natural History Museum, London, experts on caecilians in the world. They saw the specimen and asked me to identify it correctly and asked me to study caecilians. This brief discussion gave me enough encouragement to follow my dreams. Next monsoon, in 2002, we again managed to encounter one more caecilian in Amboli, but this was different. This time I managed to click photos essential for identification, made some line drawings of taxonomic characters and collected basic morphological data. With this information, I tried to identify this species but it was not matching with any known species from India. With sheer enthusiasm, I emailed these images and data to Mark and Dave. The uniqueness of this individual caecilian attracted both of them to BNHS for further study. Their visit was a real eye-opener for me as I learned a lot about caecilians, their taxonomy, a bit of their ecology from these two experts. And 'icing-on-the-cake' was the description of a new species of caecilian *Gegeneophis danieli*, Amboli Caecilian in 2003.

This new species of caecilian gave me recognition as a researcher and was a 'booster' for my decision to work on caecilian, in real sense. The taxonomic ambiguities forced me to look at various morphological characters of caecilians we encountered. The vague ecological information encouraged me to explore all the habitats we visited in a given landscape. My enthusiasm was equally shared by my friends, Ravindra Bhambure, Swapnil Pawar, Harish Kulkarni, Kshamata Gaikwad, Mahadev (Kaka) Bhise, Rohan Korgaonkar and Hemant Ogale. They always helped me in the field surveys. Eventually, we explored various landscapes in India, encountered hundreds of caecilians, 'unearthed' many mysteries about caecilians. These dedicated efforts resulted in the 'revised' understanding of this poorly understood group and that quest is still on!

Now, I can say with confidence that caecilians are elongated, limbless, burrowing amphibians. Like all other amphibians, their skin is also smooth and slimy but entire body is externally 'grooved' by rings, except head region. The eyes in Indian caecilians are poorly developed, in one groups they are below the skin and in another group eyes are under skull bone! Head is bullet shaped, with compact skull bones and skin is tightly attached to skull, is a main digging organ in caecilians. They are non-vocal and lack external ear as well. So, the question is how do they communicate? Caecilians are the only land vertebrates with a specialized organ, tentacle, which is between (or close to) nostril and eye helping them in smelling their surroundings. A few caecilians have a short tail and others are tailless. All these morphological features, when used in combination, are the good taxonomic characters to identify caecilians.

In India, the caecilians are mostly known from the Western Ghats, northeastern states and a single species from the Eastern Ghats. In the Western Ghats, they are known from close to the coast, in the coastal belt below the foothills of the ghats, in the mountains and in a few rain shadow regions on eastern slope as well. In simple words, they are everywhere. They are known from disturbed to pristine habitats, agricultural fields and also on exposed rocky outcrops in the ghats and near the coast in the northern Western Ghats. They are common and we saw them in large numbers in a few localities. Then why caecilians were considered rare? It was mainly because they are rarely seen. Naturally, as they are burrowing and to see them one has to dig, search among leaf litter, under rocks or decaying logs in all the places you visit. One has to do manual labor, instead, if you walk along the forest trails to search for caecilians, then you will never encounter them. Thus, their apparent rarity, in my views, is directly related to the amount and kind of fieldwork we do to look for caecilians. Right and meticulous efforts, at a right place, in a right time, surely unearth many mysteries, including caecilians!

Caecilians have a pan-tropical distribution. There are about 213 species of caecilians belonging to ten families in the world. In India, there are 39 species of caecilians from three families. Until 1999, only 16 species were known but thanks to efforts of a few dedicated researchers, including me, the diversity is increased by nearly 50% in the last two decades. Like the diversity of caecilians, which is comparatively less as compared to other vertebrates, the people working on this group are also rare and 'Critically Endangered'! In the recent years, the prominent contributions were made by Dr. G.K. Bhat and his team. They described many new species from the Western Ghats. Dr. Oomen P. Oomen from Kerala and his team also enhanced our knowledge about caecilians of the Western Ghats through their tremendous work. One is his students, Dr. Ramachandran Kotharambath is presently leading studies on caecilians in the Western Ghats. The prominent contributions from the northeastern part of India was by Dr. Rachunliu (Chun) G. Kamei, PhD student from Dr. S.D. Biju's lab from Delhi University. They described a new family and many new species. Our team did dedicated explorations in the northern Western Ghats and discovered a few new species as well. Interestingly, all these experts in India were equally supported by David Gower and Mark Wilkinson of the Natural History Museum, London. They were and still are instrumental in driving the studies on Indian caecilians by supporting Indian researchers and also conducting dedicated collaborative surveys.

In the last two decades, we too explored various localities in northern Western Ghats. Searched for caecilians in 'likely' and 'unlikely' habitats. Upturned thousands of rocks, logs and tons of decaying leaf litter. We hardly covered a small portion of this landscape but successfully unearthed many hidden treasures. There were three caecilians known from the northern Western Ghats in 1999, and now that number is 11, and is still increasing. Our knowledge about most of the species from this landscape was based on a few specimens collected from a single locality. But, now we have fairly good understanding about the distribution, habitat preference and present status of a few species from this landscape. One of the prominent contributions of our efforts was the discovery of the only

live bearing amphibian, Seshachar's Caecilian (*Gegeneophis seshachari*) from Kolhapur district of Maharashtra. Unlike other amphibians from Asia, this caecilian gives birth to young ones. There are a few more species which are not yet identified and those are putative new species. All this was possible through generous funding support from Rufford's Small Grants and Ministry of Environment and Forests, Government of India.

Caecilians live a subterranean life and much of the information about their ecology and behavior is also 'hidden'. What we know today is the name of the species, a bit of information about where they are seen and their distribution. We still do not have enough information about their food, their predators, their breeding behavior and what threats they are facing. Based on our preliminary observations we assume that a few species are known from polluted and pristine habitats proving their robustness. A few species are sensitive and have a restricted distribution in unpolluted places. A few species depend on water to complete their life cycle as their larvae are strictly aquatic. Other lay eggs in wet soil and their larvae are terrestrial. Thus, caecilians have an omnipresence in varied landscapes and their conservation means protection to varied habitats. The need of today is the dedicated efforts from more people in answering many questions related to Indian caecilians.

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National Conference On

CONSERVATION & BIODIVERSITY BANKING

Organized by

Rayat Shikshan Sanstha's

Arts, Science and Commerce College, Ramanandnagar (Burli)

Department of Zoology & Botany

17th January, 2020.

CONFERENCE SCHEDULE

Timing	Events of the Conference
09:30 to 10:29 am	Registration & Breakfast
10:30 to 11:15 am	Inauguration
11: 16 to 12:00 am	Key- Note Address Prof. Dr. S R Yadav
12:00 to 12:45 pm	Invite Talk – I of Prof. Dr. Satish Pandey
12: 46 to 01: 30 pm	Lunch Break
01:31 to 02: 45 pm	Invite Talk- II Dr. Varad Giri
02:46 to 04:30 pm	Oral presentation of Research Papers
	Poster presentation of Research Papers
04:31 to 05: 00 pm	Valedictory Function

Mr. Abhijit B Mane
Convenor
NCCBB – 2020

Dr. Laxman D Kadam
Principal,
Organizing Chairman
NCCBB – 2020

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A PRELIMINARY ASSESSMENT OF BIODIVERSITY OF Y. C. INSTITUTE OF SCIENCE, SATARA

S. M. Deshpande[1], P. A. Pawar[2], N. N. Bendre[2], V. Y. Deshpande[2],

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ABSTRACT:

The campus of Yashavantrao Chavan Institute of Science, Satara is explored to identify and document its floral and faunal diversity. The survey accounts for 111 floral and 152 faunal species. The study region harbours 18 rare and endemic plant species which are conserved here. The dominant flowering plant families are Apocyanaceae, Euphorbiaceae and Liliaceae while avifauna is dominant in the faunal diversity.

Keywords: Endemic, Angiosperms, Butterflies, Western Ghats.

BIOINFORMTICS IN MODERN TAXONOMY.

Ghadge Y.K., Sawant M.D., Kulkarni S.D., Deshpande V.Y. *
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ABSTRACT:

Taxonomists have to depend on known morphological character to identify, classify and put an organism in its taxonomic place. This required time and much referencing in the past even up to recent times. Currently with the advent of bioinformatics time can be saved taxonomic placement of organisms has become relatively easy.

Key Words: Taxonomy, Bioinformatics, Classification

ALGAL BIODIVERSITY FROM SHIROL TAHSIL

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ABSTRACT:

The present paper deals with study of the algal biodiversity from Shirol Tahsil. Total 16 freshwater localities viz., river, ditches, ponds and lakes were selected for the study. Total 25 species of algal taxa were collected during this study. Mostly the species were belonging to class Cyanophyceae and Chlorophyceae. Filamentous blue green algae are found most abundant from this study region.

Keywords: Biodiversity, freshwater, filamentous.

Study on Avifauna of Lanja Tehsil

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ABSTRACT:

The present research article deals with the Avifauna of Lanja Tehsil. Lanja is situated in Ratnagiri district with unique geographical conditions. Western Ghats is present to the Eastern side and Arabian Sea to the West of Lanja Tehsil. The current study specifies the richness of avifaunal diversity with existence of some endemic species in the study area.

Along with the diversity, the study area was also frequently visited for the study of abundance of different bird species. The checklist is also compared with the IUCN status to understand the importance of an area.

Key words: Avifauna, Lanja, Bird Diversity.

BIODIVERSITY OF BUTTERFLIES IN POLADPUR TEHSIL OF RAIGAD DISTRICT, WESTRAN GHATS MAHARASHTRA INDIA

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ABSTRACT:

Insects play a vital role in the maintenance of essential life support systems in natural habitat is well known. Among all insects butterflies are ecologically important; the butterflies feed on the nectar and are important as pollinators of flowering plants. Survey were carried out during year 2016-17, we reported 60 species and sub species distributed over 5 families of butterflies from Poladpur Tehasil of Raigad District. Family Nymphalidae represented 20 species followed by families Lycaenidae, Pieridae, Papiionidae and Satyridae with 18, 08, 07 and 07 species respectively

Keywords: *Survey, Poladpur, Raigad district, etc.*

Comparative account of blue green algae from paddy fields of Patan and Karad Tehsil, Satara district (M.S.)

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ABSTRACT:

Blue green algae are the photosynthetic prokaryotes representing a wide distribution in habitat. Paddy fields are the best studied aquatic ecosystem on earth; which fulfill all the necessary demands required for blue green algal growth. Present investigation results in comparative study of blue green algae from study area in relation to their geographical distribution. Patan and Karad tehsils differ in several aspects like agroclimatic conditions, geography, topography, soil types etc. Some taxa showed common occurrence and recorded in both study areas irrespective to their geographical conditions viz *Oscillatoria, Anabaena, Phormidium, Nostoc, Lyngbya,Chlorogloea,Fischerella, Westiella* and *Westiellopsis*; while some taxa found restricted to particular area viz *Aulosira, Symploca, Merismopedia, Dacylococcopsos, Synechosystes* and *Schizothrix* recorded from Paddy field soils of Patan tehsil only and *Calothrix bharadwajae* and *Polychlamydum* found restricted to paddy field soils of Karad Tehsil only.

Keywords: Blue green algae, Patan, Karad, Paddy field.

Contribution to bryoflora (Mosses) of Satara district (Western Ghats)

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ABSTRACT:

Bryophytes including plant which are commonly known as mosses, hornworts and liverworts. They are second largest group of plant and show wide range of distribution. Mosses are most evolved group of bryophytes because presence of stem, leaves and root like structure. Satara district of India comprises unique topographical condition hence is rich in bryophyte. Satara district divided in two part Western part and Eastern part. In present Work preliminary checklist has been prepared which revealed the occurrence of 9 genus and 12 species of mosses were reported first time from Satara district.

Keywords: Satara, India, Mosses

DIVERSITY OF BUTTERFLIES OF PATAN TEHSIL IN SATARA DISTRICT (M.S) INDIA.

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ABSTRACT:

Patan is a tehsil located in Satara district in Maharashtra state. It is at 17.37° N 73.9° E and at the altitude of 582 meters. It has peculiar vegetation being part of Western Ghats as well as development of agro-ecosystem there is species richness and diversity of butterfly fauna. The current study is on abundance and diversity of butterfly species occurring in Patan tehsil. There are 50 species of butterflies belonging to Pieridae, Nymphalidae and Lycanidae families.

Keywords: Patan, Tehsil, Maharashtra, Butterfly, diversity.

DIVERSITY OF FRESHWATER PROTOZOANS FROM THE WATER BODIES IN BOPARDI NEAR WAI, DIST SATARA, MAHARASHTRA

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ABSTRACT:

Protozoa are unicellular eukaryotic animalcules having role in aquatic ecosystem as a part of food chain; feeding on bacteria and being eaten by small invertebrates and filter feeders. Bopardi is a small village near Wai situated near MIDC about 4 km away from Wai, Dist. Satara of Maharashtra. Seasonal water bodies around temple of Shiva get filled with rain water and some ground water which remains in the tank more than half a year. The sample water from these water bodies was brought to laboratory and was kept under observation under microscope for the occurrence of protozoa. The total number of protozoan species observed was to be 34. It included all three kinds viz. Flagellates, Rhizopods and Ciliates. As in other studies ciliates dominated the total number and in number of varieties. The sample was observed frequently from the month of June to the month of November. Protozoan species found in the sample were recorded.

Key Words: Protozoa, ciliata, rhizopoda, flagellata, bopardi

Effect of different plant growth regulators on seedling growth of *Colubrina asiatica*

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ABSTRACT:

Colubrina asiatica L. is a promising medicinal plant commonly known as Indian snakewood or leather leaf. The seeds were given presowing soaking treatment of various plant growth regulators (SA, GA, 6-BA and IBA) in combination with sulphuric acid immersion. The results revealed improvement of vigour by SA and GA followed by 6BA and IBA. The root length and shoot length as well as biomass were increased significantly by SA treatment.

Key words: *Colubrina asiatica,* PGRs, Vigour,biomass

Ethno-botanical Exploration and Antibacterial Activity of *Butea monosperma* (Lam) Flower Extract

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ABSTRACT:

It is evident that without nature human life is impossible. *Butea monosperma* (Lam) Kuntze plants belongs to the family Fabaceae commonly called as Palash, Dhak, Palas or Flame of forest because of its vibrant red color flower. Due to the potential therapeutic value, easy availability and mode of action, this medicinal plant has attended more pharmacological exploration in modern medicinal practices. It has the great ethanobotanical Importance. Commonly it is used as tonic, astringent, aphrodisiac and Diuretics. The Present study designed to screen antibacterial activity of methanolic flower extract of Butea monosperma. The methanolic extract was tested against *Echerichia coli, Bacillus subtilis, Staphylococcus aureus, and Psuedomonas aeruginosa* using agar well diffusion method and shows high antimicrobial activity. The present investigation revealed that *P. aeruginosa* and *E. coli* are highly sensitive against flower extract.

Keywords: *Butea monosperma*, Ethanobotanical importance, Methanolic extract, Antibacterial activity.

FIRST RECORD OF LONGHORN BEETLE *PLOCAEDERUS FERRUGINEUS* LINN. 1758 (COLEOPTERA: CERAMBYCIDAE: CERAMBYCINAE) FROM WESTERN INDIA.

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ABSTRACT:

The Longhorned beetles are generally wood boring insects and are pests of various economically important trees. They belong to family Cerambycidae of order Coleoptera. The *Plocaederus ferrugineus* is a serious pest of economically important cashew tree commonly called cashew stem & root borer. It is distributed in China, Sri Lanka, Cambodia, Nigeria, Vietnam, and India. It was earlier reported from Kerala, West Bengal, Tamil Nadu, and Madhya Pradesh states of India. The latest locality of this species is Kolhapur District which becomes a first record for Western India and it is an addition to the Fauna of Maharashtra.

Keywords: Longhorned, *Plocaederus ferrugineus*, First record, Western India, Maharashtra.

FORENSIC IMPORTANCE AND SEASONAL VARIATION OF TEMPERATURE ON THE DEVELOPMENTAL STAGES OF LIFE CYCLE SARCOPHAGIDAE FLY, *Oxysarcodexia terminalis.*

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ABSTRACT:

Oxysarcodexia terminalis ,is one of the hairy maggot flesh flies which feeds on meat carrion, and dead and decaying matter of animals to the completes its life cycle which is the useful for post mortem interval (PMI). Determination in forensic investigations. The actual life cycle hours and days are calculated due to their morphological parameter of their life cycle of Oxysarcodexia terminalis were studied in different seasons; Life cycle in rainy season was completed in 270 ± 1.25 hrs (11.25 ± 0.40 days), when the maximum temperature was 27.02°C and the minimum temperature was 26.4°C; in summer season when the maximum temperature was 36.6°C and the minimum temperature 33.2°C, the life cycle was completed in 220± 1.17 hrs (6.16. ± 0.10 days), while in cycle was completed in 310 ± 1.35hrs (12.91 ± 0.21 days) when the maximum and minimum winter season life cm temperatures were 27.4°C and 17.2°C respectively. The temperature is the important role to determine the developmental stages of life cycle of Oxysarcodexia terminalis which should be considered during PMI determination. The external parameters of different stages differ from season to season. Larvae were healthy and bigger in size in rainy season but in summer were short and small sized. The size of larvae in winter season was also smaller than the size in both summer and rainy seasons.

Keywords: Forensic Insect, PMI season, lifecycle duration; Temp change.

FUNGAL FLORA ON SOME SEASONAL FRUITS

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ABSTRACT:

Present study reveals about various fungi which are responsible for decay of fruits. This study also focused on fungal biodiversity associated with various fruit diseases. Control of fungal diseases in seasonal and commercial fruits currently depends on multiple applications of various fungicides. Total 12 seasonal fruits were observed for fungal flora. During our study 35 species belonging to Deuteromycetes were identified. *Aspergillus*, *Penicillium*, *Fusarium* and *Cladosporium* were observed as dominating fungal forms.

Keywords: Fungal flora, biodiversity, Deuteromycetes

HONEY BEE DIVERSITY OF KARAD TAHASIL, ITS CONSERVATION AND FOOD SECURITY

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ABSTRACT:

The present investigation reveals with diversity of Honey Bees of Karad Tehsil of South Western Maharashtra. During the work, we have recorded 5- Species. Karad Tehsil has versatile geographical and diverse climatic conditions as part of Western Ghats. It lies in between 74^0 21' 01'N Latitude and 16^0 35'29' E Longitude. The annual rainfall in 800mm.-1100mm and temperature ranges 18^0C to 36^0C. Apiculture is science based industry using bees as micromanipulators to harvest nectar and pollen from plant sources to produce honey. Even though most plants in an ecosystem produce nectar and pollen, all of them do not contribute to the honey resource. From the ambient vegetation, the bees identify plants for nectar and pollen and collect them for the sustenance of their colonial life. Moreover, these resource preferences are distinct in natural and domesticated habitats. Although we get a substantial amount of honey from Apis dorsata the wild bee, proper beekeeping demands systematic utilization of resources through domesticated bees. It is therefore imperative that knowledge of the bee ecosystem and its ramifications is an essential pre-requisite in apiary management and product development.

Key Words: *Honey Bees, Diversity, Conservation and Food Security*

Legumes and Associated Ladybird beetles in Kolhapur district, Maharashtra.

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ABSTRACT:

Variety of insect pests such as thrips, aphids, leafhoppers, bugs, mites etc. attract towards legumes and cause significant loss in legume yield. Predatory Coccinellidae (Ladybird beetles) prefer to prey on most of the destructive and important crop pests, especially the hemipteran insects. Sampling of Ladybird beetles was done from various localities of Kolhapur district. In all, 9 predatory species were observed from 4 legumes viz. peanut, lima beans, mung bean and cowpea which are *Cheilomenes sexmaculata, Coccinella transversalis, Illeis cincta, Brumoides suturalis, Propylea dissecta, Nephus regularis, Harmonia octomaculata, Hippodamia variegata* and *Scymnus nubilus.* To minimize the loss in legume yield, these biological control agents are helpful, and Integrated Pest Management (IPM) can be implemented to get rid of pests.

Keywords: Legume, Ladybird beetle, predatory, hemipteran insects, IPM

"*Nostoc*: Blue Green Alga a Potential Biofertilizer"

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ABSTRACT:

During the present study 4 species of nitrogen fixing cyanobacteria: *Nostoc* where screened from 25 rice field around Satara. These 4 species where collected and cultured in laboratory by using different culture media like chu-10, BG-11 etc. These cultured species were also multiplied in the water tank for their mass cultivation. These species where applied on rice crops grown in pots to evaluate their potential as biofertilizer. Application of nostoc in the form of aqueous extract and in the form of their peelet found to be efficient and gave the best result.

Keywords: *Nostoc*, Cyanobacteria, Biofertilizer.

SNAKE DIVERSITY AND ITS CONSERVATION OF KARAD TAHASIL OF SOUTH WESTERN MAHARASHTRA, INDIA

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ABSTRACT:

The present investigation reveals with diversity of Snakes of Karad Tahasil of South Western Maharashtra. During the work, recorded 19-species of snakes. Karad Tahasil has versatile geographical and diverse climatic conditions as part of Western Ghats. It lies in between 74 degree 21' 01'N Latitude and 16 degree 35'29' E Longitude. The annual rainfall in 800mm. To 1100mm and temperature ranges 18^0C to 36^0C. This area surrounded by major rivers like Krishna and Koyana, no. of major and minor dams, network of agricultural water canals, no. of wetlands. Also surrounded by thick forest like Mahabaleshwar, Koyana and Chandoli as a part of Western Ghats. All these natural condition proliferates the population of the snake. Since 1985 to date rescued and conserved more than 2500 snakes. The other means of conservation through awareness programs like, Talks on snakes in various schools and colleges, among the society during rescue operation and demonstrations, by writing the articles in daily newspapers and magazines, by organizing the exhibitions and during nature camps. Out of big four poisonous snakes, major occurrence is of Russell's viper and that of nonpoisonous rat snakes.

KEY WORDS: *Snake diversity, Conservation, Karad Tashsil*

STATUS & DISTRIBUTION OF HERONRY SITES ASSOCIATED TO UJANI RESERVOIR, MS. (INDIA), WITH SPECIAL REFERENCE TO NORTH-WEST REGION

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ABSTRACT:

Ujani Dam also known as Bhima Dam or Bhima irrigation project is the major freshwater aquatic ecosystem constructed on the Bhima River located near Ujani village of Madha Tehsil in Solapur district, Maharashtra state. The Bhima river basin has about 14 tributaries having total drainage area of 48,631 $Km^{2,}$ it spreads over the Maharashtra (75%) and Karnataka (25%) states. The Ujani Dam and its large reservoir provide multi-purpose benefits including irrigation, drinking, hydro-electric power generation, Industrial water supply and fisheries.

The herons are the long-legged freshwater and coastal birds in the family Ardeidae. Information on heronries of India is still meager, because a vast number of heronries are unreported. Documentation of the species breeding within and the current status of the heronries of a particular region are the first basic steps in the conservation strategy of these birds. The present study was an attempt to access and evaluate the status and distribution of heronries associated to wetlands of Ujani reservoir with special reference to north - west region. This study was conducted from December 2015 to March, 2018 including seasonal visits to principal heronry sites i.e. Bhigwan, Khed (Rajapur), Khanota, Kondhar Chincholi, Kumbhargaon, Shedgaon, Siddhatek, Baradgaon Sudrik . All the heronry sites have good number of mixed species with variable number of nests. Mostly Banyan, *Ficus*, Tamarind trees are used for nest building.

On scrutiny, it has been revealed that, the wetlands of north-west region of Ujani reservoir have potential to provide the nesting and breeding sites for the large group of heronries. So, the habitat protection of these sites is the need of time.

Keywords: Ujani Reservoir, Heronries, Ardeidae, Habitat.

STUDIES ON BIOLOGY, DAMAGE AND MANAGEMENT OF CABBAGE WEB-WORM, HELLULA *UNDALIS* (FABRICIUS)

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ABSTRACT:

Biology, damage and management of cabbage web-worm, *Hellula undalis* (Fabricius) from Sangli district of Maharashtra have been noted. The rearing of *H. undalis* was carried out on the fresh head of the cabbage. Biology of *H. undalis showed* larval period 13 days, pupal growth 9 days, male and female adult longevity 6 and 7 days respectively. The egg incubation period was found to be 3 days. Life cycle is completed in 31-32 days. Damage and control of *H. undalis* has been discussed in the present study.

Key words: Biology, damage, control, *H. undalis*, insect cabbage pest.

STUDIES ON LIPOLYTIC ACTIVITY DURING EMBRYOGENESIS AND LARVAL DEVELOPMENT OF *LEUCINODES ORBDNALIS* (GUENEE)

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ABSTRACT:

Lipolytic activity during embryogenesis and larval development of *Leucinodes orbdnalis* (Guenee) has been attempted. Larval developmental period 12- days and embryogenesis period 5 days was noted in *L. orbonalis*. The maximum lipolytic was observed at 8-day larvae. There was gradual increase in lipolytic activity from 1-day to 8-day larvae, sharp fall from 8-9 day and gradual decrease from 9-12 day larvae. The gradual increase in lipolytic activity was observed from 1 to 2-days eggs. The rapid increase from 2 to 3-days eggs and a sharp fall from 3 to 5-days eggs. The maximum lipolytic activity was noted in 3 days eggs which is 1.7473 fold as compared to 1-day eggs. The physiological role of the lipase during embryogenesis and larval development of *L. orbonalis* has been discussed.

Keywords: Lipase, egg, larva, *L. orbonalis.*

"Studies on Pests of Livestock from Kolhapur and Satara district".

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ABSTRACT:

Pests of veterinary importance are unique in their associations with animal hosts. They feed on animal tissue or blood of the host and cause several diseases or transmit pathogenic organisms to other animals including man. To find out, diversity of veterinary pest in Kolhapur and Satara district, efforts have been made during 2016-2017. In all, 15 species were found to be associated with different domestic animals. Among these, 6 species of ticks, 5 species of flies, 2 species of lice and 1 flea species were reported from different localities. The data is presented in the form of a checklist along with color photographs. The observation of abundant pests on domestic animals indicates careless domestication which will directly affect milk yield capacity as well as meat quality (poultry).

Keywords: Livestock, Veterinary, Pests, Kolhapur, Satara.

Study of effect of aquatic plant extract (liquid fertilizer) on maize (*zea mays)* and chickpea (*cicer arietinum)* plant

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ABSTRACT:

Fertilizers are natural and artificial substance containing the chemical element that improves growth and productiveness of plant. Fertilizers enhance the natural fertility of the soil or replace the chemical element that taken from the soil by previous crops. *Hydrilla verticillata* and *Eichhornia crassipes* has become most serious aquatic plants. But these two plant extract contains lots of minerals, vitamin, iron, phosphorus, nitrogen which are beneficial for the plants growth. Aquatic plant extract did not showed any effect on growth of microorganisms present in soil. Hence it denoted that, it has no effect on growth of microorganisms at any concentration level. From this it is concluded that, it is not harmful to the native microorganisms present is the soil. Based on the parameters recorded it was clear that the maximum growth and yield of maize and chickpea plant can achieved at 30% and 50% concentration. If higher concentration is used it inhibit the growth and can't get better results so 50% mixture of two plant extract like *Hydrilla verticillata* and *Eichhornia crassipes* is best liquid biofertilizer for plants.

Keywords: Aquatic plants, maize, chickpea

Study of Some Rust Fungi from Satara District.

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ABSTRACT:

An extensive field survey, was made during 2018 to 2019 in Satara District for Rust diseases of Weeds, Wild and Cultivated plants. In all 4 genera of Rust Fungi with 4 species belonging to 4 families were Collected & Identified mostly Herbaceous & shrubby Host was found to be infected by Rust Fungi. During field work humidity, temperature, season etc. of every locality was noted. The study suggest further exploration of the area for Rust diseases in order to assess the diversity of these Fungi particularly in grasses, trees including Cultivated ones four families including Leguminaceae, Euphorbiaceae, Leeaceae, Asteraceae. Studing stages Uredial, Telial and Aecial. Hosts are the *Euphorbia geniculata , Xanthium strumarium, Leea macrophylla, Ficus religiosa (Cerotelium fici*). All the Rust fungi found together under the order uredinales of class basidiomycetes. They are identified on the basis of their teliospores morphology.

Keywords: Checklist—Satara—Fungal Diversity—Rust Fungi—Host.

THE LENGTH-WEIGHT RELATIONSHIP OF CATLA-CATLA (HAMILTON-BUCHANAN)

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ABSTRACT:

The length-weight relationship was calculated for 40 fish specimens caught from Kanher dam of Satara dist. The sampling was carried out from December 2017 to April 2018 by using cast net. The sample length varies from 18.5 to 28.5 cm while weight varies from 82.85 to 179.78 gm. The length weight relationship in fishes is affected by a number of factors including season, habitat, gonad maturity, sex, diet health, preservation condition and annual differences in the environmental conditions as well as on entire geographical range of a species. It is also found that as fish grow in length, they also increase in weight. The aim of the present study was to contribute the length weight relationship of 40 catla fishes of Kanher reservoir. The result shows that values of exponent b in regression region varied between 1.85 to 3.05. This relationship was first studied for this reservoir from this area. The present study shows weight in relation to total length in both sexes shows allometric growth pattern. The exponential value of fishes indicates allometric growth pattern in the natural habitat. The coefficient of correlation for male was r = 0.802 and for female r = 0.886 which shows the correlation factor revealed positive correlation between length and weight.

Keywords: length-weight relationships, Kanher dam, condition factor

Effect of Indoor Pollution on Peripheral Blood Leucocyte Count in Women Suffered from, Chronic Obstructive Pulmonary Disease from Rural area in Sangli District (Maharashtra-India)

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ABSTRACT:

Most women from rural area of Sangli district (Maharashtra) use biomass fuel for their chulla in kitchen. The smoke released due to in combustion of biomass fuel from chulla contains poisonous gases such as CO, NO2 and S02. Prolonged exposure of women to this air pollution get affected by the chronic obstructive pulmonary diseases, due to due to impaired respiratory function. Such COM affected women were analysed by using their spirormetry results. Women affected from restrictive and obstructive disorders were selected for peripheral blood leucocyte counts.

COPD affected 100 women using chulla, were selected from rural area Kakadwadi, 7km away from Sangli. Spirometry results show restructive and obstructive disorders with reduced FEV_1. These women's were selected for peripheral blood smear preparation.

From this study it is observed that there is correlation between eosinophill and neutrophill count and COPD women. It is also found that, neutrophill and eosinophili count were increased in relation to COPD. These results were discussed in relation to the physiology of respiration and pathogenesis of COPD.

Keywords: COPD, Differential count.

STUDY OF CYNOBACTERIAL DIVERSITY FROM THE PADDY FIELDS OF LANJA TALUKA OF RATNAGIRI DISTRICT.

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ABSTRACT:

The present research article deals with the Cyanobacterial diversity of Lanja Tehsil. Lanja is situated in Ratnagiri district with unique geographical conditions and paddy as main crop. Paddy crop is flooded in water and is associated with many species of Cyanobacteria in positive co-relation.

The sample from field collected and microscopically observed in laboratory for the identification of the Cyanobacterial species. The current study specifies the number of Cyanobacterial species lives in association with the paddy fields of Lanja Taluka.

Key words: Cyanobacteria, Lanja, Paddy.

Effect of occupational environment on respiratory health of female workers in brick industry.

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ABSTRACT:

Bricks are still produced by the old traditional manual methods in many parts of India. Brick industries in India provides source of livelihood to millions of people but it is also considered as a highly polluting industry by pollution control board. High concentration of dust, particulate matter and smoke is given out from the brick industry which is not only harmful to environment but also affects the health of brick workers badly. Workers inhale these harmful particles which enter their respiratory system ultimately affecting their lung performance. Present study was conducted on female workers of brick industry in Karad. Study area showed open clamp kiln which releases high concentration of particulate matter (SPM, PM10 and PM2.5) and gases like SO_2 and NO_2 in the working environment. Spirometric assessment of lung function showed reduced values of FVC, FEV1, FEV1/FVC and PEFR when compared with the control values. Reduced flow rates indicate the restrictive and obstructive respiratory problems in female workers due to saturation of dust particles in the upper and lower airways. Assessment of lung function of female workers of brick industry confirmed the prevalence of respiratory stress and respiratory health problems.

Key words: brick industry, particulate matter, lung performance, respiratory stress.

Behavioral Changes in Indian Major Carp *Catla catla* due to exposure to fungicides Tebuconazole and Neem oil

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ABSTRACT:

Fishes are one of the important aquatic animal and poikilothermic. Their existence in water shows the quality of the water and environment. They are the bioindicators of water pollution. *Catla catla* is a freshwater fish which is endemic to the rivers but can be easily cultured in hatchery. It is an edible fish and second most important species after rohu. The main aim of this study was to assess behavioural changes of freshwater fish *Catla catla* due to synthetic and natural fungicide. Fingerlings of length 3.00±3.50 mm and weight 4±0.10 gm were stocked in 4 aquariums. Fishes were exposed to different concentrations of Tebuconazole and Neem oil. During the change in water and addition of fungicides behaviour of fish was observed and recorded. Also the behaviour was recorded after 1 hour of addition of fungicide. These observations show that the fish behaviour is changed drastically from the original behaviour. From the changes observed it can be concluded that the behaviour can be used as indicator of pollution in the water.

Keywords: Behavioural changes, *Catla catla*, Fungicides, Synthetic Tebuconazole, Natural Neem oil

Studies on Rhizosphere Dynamic of *Putranjivaroxburghii* wall.

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ABSTRACT:

Putranjiva roxburghii Wall, belongs to family Euphorbiaceae that grown abundantly in Asian tropical regions. The rhizosphere is the narrow region of the soil that it directly influenced by root secretions and associated soil microorganism. The rhizosphere contains many bacteria and other microorganisms that feed on sloughed of plant cells, termed rhizodeposition, and the protein and sugars released by roots. In present study an attempt has been made to isolate various fungal forms associated with rhizosphere of *Putranjiva roxburghii*. The plant were grown at 270 days and analyzed the fungal population at the 90 days of interval for the purpose of isolation of microbial flora associated with rhizosphere, simple technique of washing the rhizosphere as well as suspension of soil adhered with the rhizosphere is used. Further study includes identification of the isolated fungal forms by the studying colony characters and comparing it with standard literature available. A total of 16 fungal forms belonging to 6 Genera were isolated from the rhizosphere. *Aspergillus*, & *Penicillium* species were found dominant. The maximum occurrence of fungal population was observed at 180 days growth stage of Putranjiva *roxburghii*. The soil was found alkaline represents the dominance of *Aspergillus* and *Penicillium* species. Present study will be helpful for, exploring relationship between plant roots and soil microbes and important to study the dynamics of plant communities.

Keywords: *Putranjiva roxburghii*, Fungal forms, rhizosphere, dynamics.

Studies on the diversity, occurrence and distribution of butterfly species in and around of Solankur village, Radhanagari Tehsil

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ABSTRACT:

Butterflies are the most important assemblage of insects that act as good biodiversity agent for indicating the changing environmental conditions. Hence, butterfly specie is widely used as indicator species for monitoring the habitat demolition, unscientific management, climate change and environmental degradation. The present attempt was carried out to study the butterfly diversity following transect line method in and around of Solankur village of Radhanagari tehsil. For observation of butterfly species we used transect line of 1 km long and 5 m wide in study area. In this study, we have observed total 49 butterfly species of 44 genera under 05 families. Highest butterfly species was recorded in Nymphalidae family i.e. 24 (48.97%), followed by Lycaenidae 10 species (20.40%), Papilionidae 07 species (14.28%), Pieridae 05 species (10.20%), and Hesperiidae 03 species (6.12%) respectively.

The present investigation is aim to identify any habitat destruction and irrational activities in rural area and its impact on butterfly diversity. This study may help in planning of different strategies and management practices for biodiversity restoration.

Key words: Butterfly Species, Occurrence, Distribution, Solankur village.

EFFECT OF ASPARAGUS RACEMOSUS AS GROWTH PROMOTER IN THE SUPPLEMENTARY FEED FOR COMMON CARP, CYPRINUS CARPIO

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Abstract:

In this experiment, the dry root powder of a medicinal plant, *Asparagus racemosus* was mixed with the supplementary diet containing groundnut oil cake, rice bran and fishmeal to formulate seven types of fish diets. These formulated diets were fed to the fingerlings of common carp, *Cyprinus carpio*. *Asparagus* was mixed with the conventional diet at 20%, 30%, 40%, 50%, 60% and 70% proportion and control diet was kept without *Asparagus*. Experimental diets including control were fed at 5% body weight of fish per day for 90 days. The fingerlings fed with 30% *Asparagus* gave the highest growth (weight gain) among all diets. Analysis of variance indicated that the final individual fish weight (g), Specific Growth Rate (SGR, % per day), Feed Conversion Ratio (FCR) and Protein Efficiency Ratio (PER) were significantly higher ($P < 0.001$) in 30% *Asparagus* diet compared to control.

Keywords: *Asparagus racemosus*; *Cyprinus carpio*; Growth performance; Feed utilization

STUDIES ON NEW SPECIES OF CESTODE PARASITE *TETRAGONOCEPHALUM GOVINDI SP. NOV.* OF *TRYGON SEPHEN FROM* MUMBAI COAST OF MAHARASHTRA

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ABSTRACT:

Coastal zones are fragile and therefore any attempt to deplete them for use may result in irreparable loss of natural systems with serious consequences to the productive potential and economic uses of associated natural systems. As the fishes are an important source of protein for millions of people worldwide it should be checked with regards to parasite infection to avoid further health problems of human being. The present research work deals with systematic study of the cestode parasites *Tetragonocephalum govindi* from the fish *Trygon* sephen collected form coastline of Mumbai, Maharashtra.

Keywords: Cestode Parasites, *Tetragonocephalum, Trygon sephenae*, Mumbai Coast

AGE CAN ESTIMATE IN INDIAN BIRD, RED VENTED BULBUL *PYCNONOTUS CAFER* BY SKELETOCHRONOLOGY

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ABSTRACT:

Cyclical growth marks in cortical bone, deposited before attainment of adult body size, reflect osteogenetic changes caused by annual rhythms and are a general phenomenon in non-avian ectothermic and endothermic tetrapods. Age was determined for the first time by enumerating the number of growth marks present in the cross sections of phalanges of the Indian bird Red vented Bulbul *(Pycnonotus cafer)* inhabiting southern India. Mid-diaphyseal sections of phalanges exhibited growth rings, each ring consisting of a broader growth zone and a chromophilic line of arrested growth (LAG). One to four growth marks were observed in red vented bulbul.

Key words: Bird, tropics, age, skeletochronology

STRUCTURES ASSOCIATED WITH FEEDING IN *CHANNA ORIENTALIS* FROM KAIGAON TOKA (M.S.)

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ABSTRACT:

Present study is an attempt to elucidate the structural adaptations of *Channa orientalis* from Kaigaon Toka region of Aurangabad. Many morphological adaptations observed in this fish such as large, blunt, horizontal and terminal mouth, blunt lips, Maxillary teeth , Mandibular teeth, palatine teeth, Molariform teeth ,the teeth of *Channa orientalis* show many modifications with respect to their function in feeding and presence of teeth reveals the carnivorous feeding nature of this fish.

Keywords: Mouth, jaws, buccal cavity, lips, teeth.

EFFECT OF CYANOBACTERIAL TOXINS ON LARVAL DEVELOPMENT OF *SPODOPTERA LITURA* (LEPIDOPTERA: NOCTUIDAE)

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ABSTRACT:

Spodoptera litura (Lepidoptera: Noctuidae) is a polyphagous pest having a large host range and it causes, economic damage to crops such as soybean, groundnut, cotton, marigold, tomato, cauliflower, sweet potato etc. Generally, synthetic or chemical pesticides are used to control this pest but extensive use of these pesticides results in the development of resistance in this pest and synthetic pesticides adversely affect the non-targeted organisms, the yield of Cyanobacteria crop the and human health. Therefore it is essential to find natural pesticide which is environmentally safe. Cyanobacteria (Blue-Green Algae) are the producers of secondary metabolites with toxic properties known as cyanotoxins and these secondary metabolites are the source of natural pesticides. The present study was undertaken to evaluate the potential of cyanobacteria (Blue-green algae) to explore their effect on the growth and development of *Spodoptera litura*. The pure methanolic extract obtained from cyanobacterium was tested against the different instars of *Spodoptera litura*. Among the 5 instars, 1st instar was the most sensitive and 4th instar was the most resistant. Some biological activities also studied with toxic activity of this cyanobacterium.

Keywords: *Spodoptera litura***,** Cyanobacteria, Cyanotoxins, Toxic activity.

Antimicrobial Effect of Leaves and Bark Extract of *Terminalia arjuna*

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ABSTRACT:

Plants are one of the most important sources of medicine and are used as medicine from ancient period. It is found that about 80% of the population of developing countries depends upon home care and traditional medicine for major therapies. Plants are one of the most important and a rich source of medicine as it produces different types of bioactive compounds. Due to the indiscriminate use of antibiotics has led to an increase in antibiotic resistance among microorganisms. Bacteria become resistant to antibiotic by different ways. R-plasmid often contains genes for resistance to different antibiotics. Plasmid may be transferred between bacterial cells in a population. Patient suffering from antibiotic resistant strain fail to respond antibiotic treatment. So there is a continuous demand of new drug. In the present study antibacterial activity of leaves and bark of *Terminalia arjuna* was studied against *Escherichia coli* NCIM2064, *Staphylococcus aureus* NCIM2079, *Proteus mirabilis* NCIM4175 & *Pseudomonas aeruginosa* NCIM 2036. The antibacterial activity of water and solvent (ethanol, methanol) extract of plant was studied by agar - well diffusion method. *Terminalia arjuna* showed maximum antibacterial activity against *Escherichia coli* NCIM2064 followed by *Pseudomonas aeruginosa* NCIM 2036, *Proteus mirabilis* NCIM4175, & *Staphylococcus aureus* NCIM2079. Bark extract significantly exhibited higher activity towards all the strains. Leaf extract is less effective as compared to bark extract of *Terminalia arjuna*. The bark extract of *Terminalia arjuna* could be used as potential source of herbal medicine against human pathogenic bacteria.

Keywords: Antimicrobial activity; Agar well diffusion method; Human pathogen, *Terminalia arjuna.*

SOME ALGICOLOUS FUNGI FROM MAHARASHTRA

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ABSTRACT:

Algae are important indicators of ecosystem health and integrity because they form the base of most aquatic food chains. Algae are also an excellent indicator of water quality, as their abundance and community composition, most often reflect (and have the capacity to affect) the chemical properties of water such as pH and nutrient levels. On some freshwater as well as marine algae algicolous fungi occur. Their function is unknown. In this present paper two algicolous fungi are reported. *Sporichisma mirabile* Berk. & Br. on alga *Oscillatoria amphibian* Agardh while *Gonytrichum macrocladium* (Sacc.) Hughes on *Chroococcus sp* Nageli. All the host are freshwater algae.

Keywords: Fungal biodiversity, algicolous fungi (aquatic fungi), freshwater algae.

HISTOPATHOLOGICAL AND ULTRASTRUCTURAL STUDIES OF THE FENUGREEK NANOPARTICLES ON PANCREAS OF ALLOXAN INDUCED DIABETIC MICE.

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ABSTRACT:

To evaluate the protective effect of fenugreek (*Trigonella foenum graecum L.*) on alloxan induced diabetic mice, 15 male albino mice weighing 26-30 gm were used. They were divided into 3 groups. Control group received subcutaneous injection of 15 M acetate buffer for 15 days. Alloxan induced group received subcutaneous injections of alloxan 150mg/ kg body weight to induce diabetes. Recovery group received subcutaneous injection of fenugreek nanoparticles 15 mg /kg body weight per day for 15 days. At the end of experiment histological and ultrathin sections of pancreas prepared. In diabetic mice disturbances in pancreatic arrangement is observed. While in electron microscopic study pyknotic nuclei vacuolation and morphological changes in mitochondria, endoplasm reticulum and degranulation of β cells were clearly observed. In Conclusion fenugreek nanoparticles could normalize the diabetes and provides protection to pancreatic tissues from damaging effect of diabetes.

Key words: Diabetes, Alloxan, Pancreas, Histology, Fenugreek nanoparticles.

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2	AGE CAN ESTIMATE IN INDIAN BIRD, RED VENTED BULBUL *PYCNONOTUS CAFER* BY SKELETOCHRONOLOGY	**07**	**II**
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6	ALGAL BIODIVERSITY FROM SHIROL TAHSIL	**06**	
7	Studies on Rhizosphere Dynamic of *Putranjivaroxburghii* wall.	**05**	
8	*"Nostoc*: Blue Green Alga a Potential Biofertilizer"	**05**	
9	SNAKE DIVERSITY AND ITS ONSERVATION OF KARAD TAHASIL OF SOUTH WESTERN MAHARASHTRA, INDIA	**06**	**III**
10	HONEY BEE DIVERSITY OF KARAD TAHASIL, ITS CONSERVATION AND FOOD SECURITY	**05**	
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