A Two-Day International (Web) Conference On

"New Vistas in Aquatic & Terrestrial Biology and Environment during Current Pandemic" (ATBE-2021)

March 26 & 27, 2021

ABSTRACTS

Organized by

DEPARTMENT OF ZOOLOGY

R. S. S. P. Mandal's

Nanasaheb Y. N. Chavan Arts, Science and Commerce College,

Chalisgaon, Dist. Jalgaon (M.S.) India

In Joint Collaboration with

Nepal Aquaculture Society Kathmandu, Nepal (NEAQUAS)

Glocal Environment and Social Association, New Delhi (GESA)

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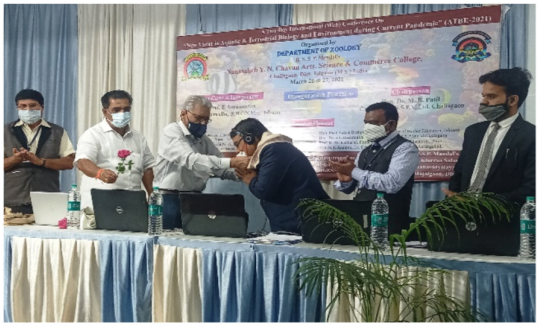
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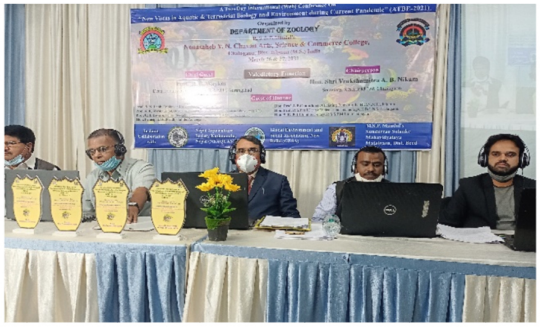
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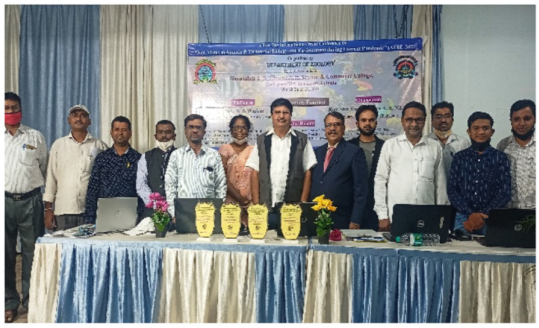
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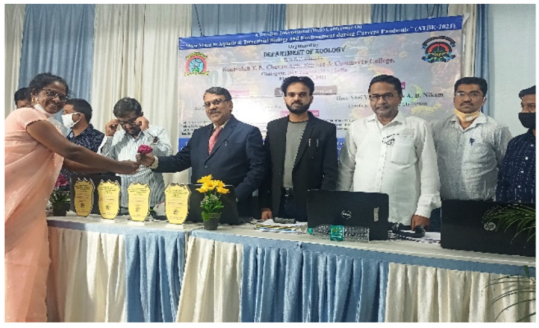
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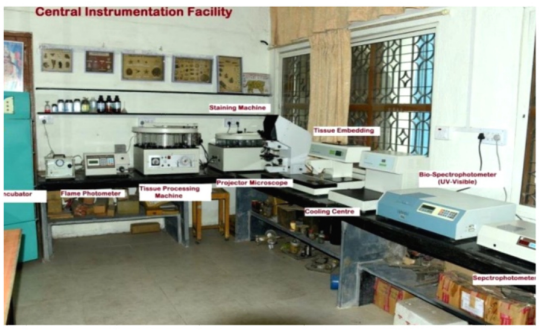
Central Instrumentation Facility
Staining Machine
Tissue Embedding
Tissue Processing Machine
Projector Microscope
Cooling Centre

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DEPARTMENT OF ZOOLOGY
R. S. S. P. Mandal's Nanasaheb Y. N. Chavan Arts, Science & Commerce College, Chalisgaon, Dist. Jalgaon (M.S.) India
March 26 & 27, 2021

About Organizers

Nanasaheb Yashvantrao Narayanrao Chavan Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon (M.S.) is a branch of the huge tree of the Rashtriya Sahakari Shikshan Prasarak Mandal Limited, Chalisgaon having sprouted in 1984, under the tenure of Shikshan Maharshi Shri. Nanasaheb Yahvantrao Narayanrao Chavan with its noble mission "**Saa Vidya Ya Vimuktaye**". The College runs 20 departments of the U.G. courses along with post-graduation in the subjects of Zoology, Computer science, Botany, and Geography. The college also runs effectively the courses viz. BCA, BBM, MCM and 21 COP course viz. Certificates, Diploma and Advance Diploma. Research facilities are also available in the department of Zoology, Geography, English and Chemistry respectively. The department of Zoology of the college has rich heritage of Dr. B.M.Murhar pioneering contribution towards research in Helminthology.

Nanasaheb Yahvantrao Narayanrao Chavan Arts, Science and Commerce College is affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon, (M.S.), India and is recognized under section 2(f) & 12 (b) of the UGC Act 1956. National Assessment and Accreditation Council (NAAC), Bangalore has re-accredited the college in IInd Cycle with A grade (CGPA 3.10) in 2014 and in IIIrd Cycle with B^{++} grade (CGPA 2.77) in 2019. Also Best College Awardee of KBCNMU, Jalgaon.

In Joint Collaboration with Nepal Aquaculture Society, Nepal,
Glocal Environment and Social Association (GESA), New Delhi and
M.S.P. Mandal's Sunderrao Solanke Mahavidyalaya Majalgaon, Dist. Beed

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Glocal Environment & Social Association (GESA), New Delhi

In order to serve a bit the Nature and Society for better future, the Glocal Environment & Social Association (GESA) is constituted. Its headquarter is located in New Delhi. Its main aim is to develop and promote 'global thought and local action' ideology to save the nature. It organizes the seminars; workshops etc. to aware and educate the people on blazing environmental and social issues. The GESA felicitates the persons and organizations for their outstanding services rendered in various fields of agriculture, arts, biodiversity conservation, commerce, culture, education, environment, healthcare, humanities, literature, mass communication, music, patriotism, peace and harmony, science, sports, technological innovations and other social services. The GESA will confer following categories of awards and honors to its members during this conference:

1. Life Time Achievement Award (**Above 55 years of age**)
2. Hon. Fellowship/ Fellowship (**FGESA**)
3. Dr. APJ Abdul Kalam Green Environment Promotion Award
4. Dr. Sarvepalli Radhakrishnan Education Promotion Award
5. Chaudhary Charan Singh Award for Agricultural Innovations
6. Sardar Patel Glocal Award for Social Awareness
7. Lal Bahadur Shastri Glocal Award for Biodiversity
8. Senior Scientist Award (**Above 40 years of age**)
9. Best Faculty Award for Teaching/Research/Innovations
10. Distinguished Service Award / Distinguished Teacher Award (Crop, Plant Protection, Horticulture, Fisheries, Home Science, Social Science, Animal Science, Life Science etc.)

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11. Innovative Educationist Award/ Agriculture Extensionist Award
12. Teacher of the Year / Extension Professional of the Year / Doctor of the Year Award
13. Technological Innovations Award
14. Paryavaran Ratna Puraskar
15. Vigyan Bhushan Puraskar
16. Sahitya Shri Samman
17. Young Scientist/Young Researcher Award (**Below 35 years of age**)

Note: Life Membership of GESA is mandatory for above awards, which is Rs. 5000/-. Each awardees will receive a multicoloured award certificate and a high quality memento. GESA Award selection is mainly based on biodata. Those who have received GESA awards in 2020 are not eligible to apply. For detailed guidelines, please log on to website: http://www.gesa.org.in **[Email id: president.gesa@gmail.com]**

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Dr. R. S. Kale, Head, Department of Zoology, MGVS Arts, Commerce and Science College, Manmad

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Prof. Pramod Pandurang Mahulikar**,** Pro- Vice Chancellor, KBCNMU, Jalgaon

Prof. Bhausaheb Vyankteshrao Pawar, Officiating Registrar, KBCNMU, Jalgaon

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Dr. N. S. Sharma, Department of Zoology, Arts, Commerce and Science College, Jamner

Dr. C. T. Sharma**,** Head, Department of Zoology, Arts, Commerce and Science College, Bodwad

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Prof. Shyam Narayan Labh**,** (Gold Medalist) Fulbright Research Scholar (University of Idaho, USA) Ph.D., D. Sc., FNAS, FZSI, FLS (London) Professor & Head (CRC), Amrit Campus, IOST, Tribhuvan University, Kathmandu, Nepal.

Dr. A. K.Verma**,** Head, Department of Zoology Govt. PG College, Saidabad, Prayagraj (U.P.)

Prof. Vishwas Shembekar, Ex. Head, Dept. of Zoology, Rajarshi Sahu Mahavidyalaya, Latur

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|| अंतरी पेटवू ज्ञानज्योत ||
Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon
Umavinagar, Jalgaon - 425 001 (Maharashtra) INDIA
(formerly North Maharashtra University, Jalgaon)

1990 'A' Grade NAAC Re-Accredited (3rd Cycle)

Prof. E. Vayunandan
ACTG. VICE-CHANCELLOR

MESSAGE

I am happy to know that R.S.S.P. Mandal's Nanasaheb Yashvantrao Narayanrao Chavan ASC College, Chalisgaon is organizing A Two Day International (Web) Conference on "New Vistas in Aquatic & Terrestrial Biology and Environment during Current Pandemic (ATBE-2021)" on 26th & 27th March, 2021.

This conference is providing a common platform to the researchers to share views on the problems of common interests in Aquatic & Terrestrial Biology and Environment during Pandemic. The deliberations in this conference will definitely play an important role in providing information related to the recent advances during current pandemic. I am sure that this conference will facilitate interaction between researchers and encourage them to pursue their research effectively.

I wish the International (Web) conference a grand success.

(Prof. E. Vayunandan)
Actg. Vice-Chancellor

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MESSAGE

It is my privilege to extend a very warm welcome to the inaugurator Prof. Vayunandan, the Honourable Vice-Chancellor of Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon, all the eminent Resource Persons, invited speakers and the delegates on the occasion of this International Web Conference on "New Vistas in Aquatic & Terrestrial Biology and Environment During Current Pandemic" organized by the Department of Zoology on 26 and 27 March 2021. Nanasaheb Y. N. Chavan Arts, Science and Commerce College is one of the best colleges in our University area and has completed the third cycle of Assessment and Accreditation with B + + Grade awarded by NAAC. The college is currently running twenty U. G. and four Post-Graduate courses.

All the sections of life and all the countries in the world have been adversely affected by the Corona-19 Pandemic. This Conference is of a great relevance as it will shed light on the consequences of Corona virus and will also point out the prospects of sustainable development and applied aspects of Biology and Environment sciences. The scholarly deliberations and presentations by eminent researchers and participants will show innovative ideas or solutions for overcoming this chaotic situation.

Once again I warmly welcome you all to this International Web Conference on behalf of Rashtriya Sahakari Shikshan Prasarak Mandal Ltd, Chalisgaon Dist. Jalgaon (M. S.).

Bapusaheb Dr. Shri. M. B. Patil
Chairman
R. S. S. P. Mandal Ltd. Chalisgaon
(M. S.)

MESSAGE

It gives me a great pleasure to note that Nanasaheb Y. N. Chavan Arts, Science and Commerce College run by our Sanstha R.S.S. P. Mandal Ltd. Chalisgaon Dist. Jalgaon (Maharashtra) is organizing an International Web Conference on "New Vistas in Aquatic and Terrestrial Biology and Environment During Current Pandemic" on 26 and 27 March 2021.

The theme of the Conference is globally relevant. The Conference will promote studious interactions and presentations by the genuine researchers, eminent Resource Persons and the delegates. The deliberations will throw light on the fundamental and applied aspects of Biology and Environment sciences and pinpoint their significance in the current COVID-19 Pandemic. The Conference will reveal the hidden potentials in Biology and Environment sciences for sustainable development and for successfully overcoming the Pandemic situation. The deliberations and presentations will surely open up new avenues unexplored in these areas.

I heartily welcome the learned Professors, the eminent Resource Persons, the researchers and the participants from abroad and from India and wish this Conference a grand success !!

Bapusaheb Vrukshmitra Shri. Arun B. Nikam
Secretary
R. S. S. P. Mandal Ltd., Chalisgaon
Dist. Jalgaon (Maharashtra)

MESSAGE

I am very delighted to state that Nanasaheb Y. N. Chavan Arts, Science and Commerce College, Chalisgaon, run by our Sanstha R. S. S. P. Mandal Ltd. Chalisgaon is organizing a Two-Day International Web Conference on "New Vistas in Aquatic and Terrestrial Biology and Environment During Current Pandemic". The theme of Conference will bring a rich fund of knowledge on the new avenues in Aquatic and Terrestrial Biology and Environment and the new applied aspects in these sciences.

The participation of learned and eminent Resource Persons, researchers and delegates will bring to light the potentials and prospects of Biology and Environment for sustainable development. This has a great and unique importance in the current Pandemic situation of COVID-19. I hope that the Conference will show the world the positive signs for overcoming this Pandemic.

My best wishes for the success of this Conference!!

Dadasaheb Dr. Shri. Sanjay Gopalrao Deshmukh
Vice-Chairman
R. S. S. P. Mandal Ltd., Chalisgaon
Dist. Jalgaon (Maharashtra)

MESSAGE

An International Web Conference is being organized on 26 and 27 March 2021 by Nanasaheb Y. N. Chavan Arts, Science and Commerce College, Chalisgaon Dist. Jalgaon. The selection of the theme "New Vistas in Aquatic and Terrestrial Biology and Environment During the Current Pandemic" is very thoughtfully done. The world has been experiencing the adverse effects of COVID-19 Pandemic. It is in the fitness of things that there are serious deliberations and interactions among the learned scholars and researchers about these sciences to tackle this Pandemic and to promote sustainable development for the present and future generations. Congratulations to the Department of Zoology for selecting the relevant theme for this Conference.

The Conference will add a feather to the crown of the college and the Sanstha-Rashtriya Sahakari Shikshan Prasarak Mandal Ltd. Chalisgaon Dist. Jalgaon (M.S.) Best wishes for the success of the Conference !!

Abasaheb Shri. Sanjay Ratansing Patil
Joint Secretary
R. S. S. P. Mandal Ltd., Chalisgaon
Dist. Jalgaon (Maharashtra)

MESSAGE

FROM PRINCIPAL DESK

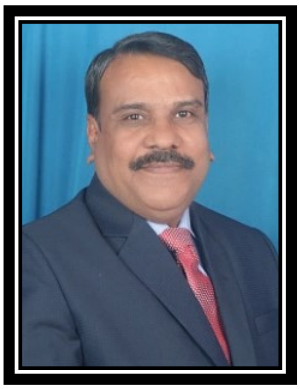
We are privileged to organize a Two-Day International Web Conference on "New Vistas in Aquatic and Terrestrial Biology and Environment Sciences During Current Pandemic" on 26 and 27 March 2021.Our college is run by R. S. S. P. Mandal Ltd. Chalisgaon Dist. Jalgaon. Our Sanstha was founded by a visionary Late Shri. Nanasaheb Y. N. Chavan in 1953. At the present the Sanstha has 37 branches including a Senior college, High Schools, Junior Colleges, Kanyashala, Ashramshala and a school for Blind students. The college was established in 1984 and functions strictly in consonance with the vision and mission of spreading higher education in rural area in Social Sciences, Humanities, Commerce and Management and Basic and Applied Sciences with humanitarian, national and international outlook. The college runs courses like B. A., B. Com., B. Sc., B. C. A., B. M. S., M. M. S. and M. Sc. (Botany, Zoology, Computer and Geography). The strength of the college is 2300 and 60% students are female. In addition, there are 23 COP Courses. The college has been awarded A Grade in the II nd cycle and B + + Grade in 3rd cycle. The college is the recipient of The Best College Award by KBC North Maharashtra University, Jalgaon and has been the Best College in Sports consistently.

The whole world has been adversely affected by the COVID-19 Pandemic. This Conference is of a great significance because it will shed light on the new avenues in Biology and Environment Science and also their basic and applied aspects. The learned and eminent Resource Persons, speakers and researchers from Nepal, Saudi Arabia and India have been invited for the Conference. The presentations and deliberations in this Conference will surely look at the new vistas in Aquatic and Terrestrial Biology and Environment Sciences and

show hope for survival and sustainable development of humanity during COVID-19 Pandemic and in future.

DR. S. R. JADHAV
Principal
Nanasaheb Y. N. Chavan Arts, Science and Commerce College, Chalisgaon
(M. S.) India

MESSAGE



FROM THE DESK OF CONVENOR

It's my immense pleasure to welcome all the dignitaries, scientists, delegates and researchers on behalf of Organizing Committee of the Two Day International (Web) Conference On New Vistas in Aquatic & Terrestrial Biology and Environment During Current Pandemic (ATBE-2021) organized by Department of Zoology on 26th and 27th March, 2021. It's a great honour bestowed upon me by Hon. Principal of our College, Dr. S. R. Jadhav for giving me this opportunity to be the Convener of this International Conference. His advice and guidance have enabled me to overcome the difficulties during the course of this event.

The theme of the Conference has a wide scope and great relevance in the context of the current scenario of basic and applied biological and environmental science. The researchers in this field are reaching to the great heights. As it is multidisciplinary and dynamic, it will definitely provide us some good results in the field of sustainable development of global diversity and wildlife conservation, pollution and waste management, bio reclamation and bioremediation.

This interdisciplinary Conference is the need of new era. During this conference there will be one keynote address, fourteen plenary lectures and three technical sessions. I hope the Conference will be fruitful by scientific deliberations on fundamental and applied aspects on biological and environmental science.

On behalf of Organizing Committee, I am grateful to our patrons, the Managing Board of R. S. S. P. Mandal who have directly or indirectly helped us for making this conference a successful event.

Finally I must acknowledge the efforts of Organizing Committee and other committee members for their help in organizing this event. The task in bringing out the Abstract book has been possible with the constant day and night efforts taken by members of editorial board, my colleagues, Vice Principals and students as well.

We are thankful to all eminent Resource Persons, participants and well-wishers for their moral support and cooperation for this Conference.

Prof. Ajit T. Kalse
Convener

MESSAGE

FROM THE DESK OF ORGANIZING SECRETARY

Dear colleagues

On behalf of the PG Department of Zoology, Nanasaheb Yashwantrao Narayanrao Chavan Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon, affiliated to KBCNMU Jalgaon, M. S., India and Organizing Committee, it's my great honor and pleasure to invite you to participate in the **A Two Day International (Web) Conference on New Vistas in Aquatic and Terrestrial Biology and Environment during Current Pandemic (ATBE-2021)** to be held on March 26-27, 2021. This Conference is a global platform to discuss and learn about Life sciences, Aquaculture, Terrestrial biodiversity, Animal biodiversity, perspectives in Forensic science, Integrated pest management, Environment issues etc. Our main objective is to generate new findings and collaborations among scientists, researchers, students and learned Professors from various parts of the world, which will provide dynamic platform to exchange the ideas, knowledge and to increase the network. In this International Conference more than 15 plenary lectures will be delivered by experts from different branches of sciences, fields of knowledge and subjects. So we hope that this International Conference will be productive and fruitful. So we invite you and welcome all delegates and participants to join the web conference. Let's be a part of this memorable event.

Dr. Y. M. Bhosale
Organizing Secretary
ATBE-2021

Contents

FLOW THROUGH AND RACEWAY AQUACULTURE OF RAINBOW TROUT (ONCORHYNCHUS MYKISS) IN THE HIMALAYAN KINGDOM, NEPAL

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Abstract:

Nepal is one of the richest Himalayan countries in the world situated at an altitude varying from 60 m in the south to 8,848 m in the north and, possessing about 2.27% of the world water resource. Out of 5% (818,500 ha) of the total area of the country, there are about 6,000 rivers and rivulets flowing from north to south totaling about 45,000 km in length and covering an estimated area of 395,000 ha and these rivers and rivulets comprise about 48% of the total water resources. Thus, aquaculture in Nepal depends entirely on the exploitation of inland water bodies e.g. rivers, streams, lakes, reservoirs, and ponds. Rainbow trout is an exotic carnivorous sport fish which can survive in water temperatures ranging from 0 to 25°C, but the suitable water temperature range for feeding and growth is 13-18°C, and 9-14°C for the spawning and hatching of eggs. In Nepal, the main objectives behind the introduction of trout farming are to encourage rural farmers/growers to produce high quality protein to be consumed and to provide an attractive income generating opportunity for the people living in the hilly region that would utilize their abundant cold-water resource. The focus of this study is to provide basic information regarding the technique used for rainbow trout through raceway and flowthrough aquaculture system in hilly regions of the country.

Keywords: Himalayan Kingdom, Rainbow trout, Raceway aquaculture, Nepal, Rivers

IDENTIFYING A CARYOPHYLLAIED CESTODE- MODERN MOLECULAR METHODOLOGY

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Abstract:

There are several methods which have been used by several authors in past for identifying a unusual group of cestode called Caryophyllaieds (Cestoidea). Caryophyllidean Cestodes are monozoic cestodes with unique morphology, evolutionary status, genetic stability showing low fecundity yet are extremely successful, their abundance in fishes are on account of vitelline cells which can synthesis and store glycogen in the nuclei as a normal function – " a unique phenomena in the animal kingdom"- Agarwal 1985. The methods used for identifying species are traditional morphological studies based on linear measurements. This has resulted into inflation of descriptions of congeneric taxa for exp. More than 52 species have been reported under the genus *Lytocestus* (Lytocestidae:Caryophyllidea) many of them have fell under synonymy or invalidated or kept under 'insertae sedis'. Others have used electophoretic analysis of tissue protein to ascertain species. The protein bands were considered a great tool, in delineation of the species.

Yet others took statistical analysis where linear measurements and ratios in different populations of parasites recovered from different places of the host. The coefficient of variation (CV) though is a sensitive indicator of homogeneity of biological sample yet the value of CD (over 1.28) helps in sub-specific recognition Meyr (1969). To circumvent all controversies now a day's molecular characterizations has been considered very important for specific determination. This method has been discussed. It however, does not mean that the traditional method is an absolete one, the modern method supplements the traditional one.

PHYTONEMATODES: CURSE TO AGRICULTURE CROPS

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Abstract:

The nematodes are belonging to the Helminth group and are commonly known as roundworms. The typical nematode shape is a long and slender worm-like, but often the adult animals are swollen and no longer even resemble worms .The Plant-parasitic nematodes occur in all sizes and shapes. Plant-parasitic nematodes range from 250 um to 12 mm in length, averaging 1 mm, to about 15-35 um in width. The nematodes are unsegmented worms but they have cuticular ornamentations on the body which looks like many annulations on the body and are having bilateral symmetry, but with a superimposed trilateral and hexalateral symmetry. Developmentally, nematodes are triploblastic, most of the higher organisms which are tripoblastic have a coelom, a body cavity surrounded by mesoderm but the Nematodes do not have true body cavity i.e. coelom but are pseudocoelomic ,their body cavity is not totally surrounded by mesoderm. Typically they are diocious.

The nematodes occupy different ecological niche. Many species of nematodes are 'free-living', living in soil, sea and freshwater. These feed on bacteria, fungi, protozoans's and even other nematodes, and play a very important role in nutrient cycling and release of nutrients for plant growth. Other nematodes attack insects, and help to control insect pests. There are also plant parasitic nematodes which cause damage to different crops and plants causing heavy economic loss. The average annual global loss in agriculture contributed by the plant parasitic nematodes is 12.5%. The loss is variable in crop to crop and region also.

Many plant-parasitic nematodes feed on the roots of plants. The feeding process damages the plant's root system and reduces the plant's ability to absorb water and nutrients. The Nematode damage of the plant's root system also provides an opportunity for other plant pathogens to invade the root which will make infestation and damage more severe. Direct damage to plant tissues by shoot-feeding nematodes includes reduced vigor, distortion of plant parts, and death of infected tissues depending upon the nematode species. The quality and the quantity productions in different crops will be the net results.

Most plant parasitic nematodes are soil borne root pathogens, they shows different degree of parasitism; few species feed primarily upon shoot tissues. The majority of plant parasitic nematode species are in the class Chromodorea, order Rhabditida (formerly placed in the order Tylenchida). There are seven major types of nematode feeding strategies used by plant parasitic nematodes as follows.

The Feeding Strategies of Plant Parasitic Nematodes:

Feeding Strategy	**Example Genera**	**Order**	**Infective Stage**
Ectoparasite	*Belonolaimus*	Rhabditida	J2 Adult
	Xiphenema	Dorylaimida	J2 Adult
	Trichodorus	Triplonchida	J2 Adult
Semi-Endoparasites	*Rotylenchulus*	Rhabditida	J4
	Tylenchulus	Rhabditida	J2
Migratory Endoparasites	*Pratylenchus*	Rhabditida	J2-adult
	Radopholus	Rhabditida	All motile juvenile Stages and females
Sedentary Endoparasites	*Meloidogyne*	Rhabditida	J2
	Heterodera	Rhabditida	J2
	Naccobus	Rhabditida	J2
Stem and Bulb Nematodes	*Bursaphelenchus*	Rhabditida	J4
	Ditylenchus	Rhabditida	J4
Seed Gall Nematodes	*Anguina*	Rhabditida	J2
Foliar Nematodes	*Aphelenchoides*	Rhabditida	J2 Adult

There are different methods for management of plant parasitic nematodes but no any one method is 100% effective so, we have to use or apply the managemental practices in combination. There are many other aspects dealt with Phytonematodes and has to be studied in details.

Keywords: Phytonematodes, Agriculture, crops, looses, Management, Feeding etc.

WASTE-WATER RECLAMATION USING BIOTECHNOLOGICAL PRINCIPLES: PROSPECTS OF ECONOMICALLY VIABLE FISH CULTURE

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Abstract:

Biotechnology has a wide range of approaches that can improve commercial biomass production, but these have also to be regionally and socially diverted for better development in any country. Conservation of our vast but equally fast depleting natural resources has to be on topmost priority. Soil amelioration, waste management, water purification, recycling and reclamation are some of the high tech eco- friendly applications. The increasing population, climatic changes and the sky rocketing of prices have contributed to the worsening of the food situation. The problem will certainly become more critical in future.

To meet the severe shortage of food supplies, intensive research is under way to develop technology for massive and economic production of protein from natural resources including aquatic. Fisheries constitute a small part of GNP, but its role in national development is of considerable significance. The judicious use of domestic waste water for high tech aquaculture is one of the methods of developing massive and economic production of protein from natural resources: SCP- Animal Protein).Waste - water fish culture provides tremendous scope for food production using the biological system as it is loaded with natural food.

In the present study utilization of domestic waste water for low cost mass protein production is discussed. Symbiotic relationship of this culture system has indicated that fish not only improves waste treatment capacity of the ponds, but also increased vegetal and animal protein many times. Cultured fish was of good quality and the yield obtained was high, as the present study shows. The significance of these results is not only in percentage increase, but also in the absolute increase (about 8500 kg/ha/yr of *C.carpio* and 4000 kg/ha/yr of *L.rohita, C. catla* and *C.mrigala* . The present investigation was done in domestic sewage oxidation ponds located at 10 Km south east of Bhopal city. There are 8

oxidation ponds in two series of primary and secondary ponds. Each pond is having an area of 4000 sq m. with a capacity of treating 3 million gallons of domestic sewage per day, constructed as per NEERI & PHE Dept.Out of the 8 ponds, 4 have been selected for fish culture. 2 primary and 2 secondary ponds along with a control fresh water pond. This study ncluded detailed monthly assessment of hydrobiological parameters of all ponds along with allied aspects of culture of fishes like:

*Cyprinus Carpio, Labeo rohita, Cirrhinus mrigala, Catla catla and Hypothalmicthys molitrix.*Analysis of all important physico - chemical and limnological parameters was done as per Standard Methods of Waste Water Treatment (APHA, 2000). Common carp and Silver carp were one of the most successful species to grow very fast and within 1 yr they gained average wt of 2.2 kg and 2.4 kg. The net fish production was found to be 8475 Kg/ha/yr, which was 3 times greater than fresh water pond, with normal supplementary feeding. Present findings demonstrate that fish yield in secondary ponds not only increased many fold but also minimized the prevailing eutrophication. The two fold purpose of treating waste – water with efficiency and getting three times greater fish production without any supplementary feeding than the conventional methods, reflects the great symbiotic potential which waste – water aquaculture holds. The successful fish production in oxidation ponds is attributed to bioengineering of physico-chemical factors, rich food web, rapid uptake and recycling of readily available nutrients and their management.

AGRICULTURAL SUSTAINABILITY THROUGH BEEKEEPING

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Abstract

Apiculture deals with the rearing of honey bees in order to obtain honey, beeswax, pollen grains, royal jelly, venom and propolis, and also for crop production by their efficient service of cross pollination. Issues facing our world include poverty, climate change, and deforestation, loss of biodiversity, water shortages, pollution and urban sprawl. While beekeeping cannot cure all of these it offers a feasible and wholly environmentally beneficial activity that helps fight against these problems.

Beekeeping is a model activity that has many advantages for sustainable agricultural development. In India environment is suitable for beekeeping, bees are a free, renewable resource. Start-up costs with local hive bees are low and profits can be realized quickly. Beekeeping is a particularly relevant activity for the rural peoples. As honey bees collect floral resources over a wide area, they pollinate flowers, thereby increasing the number and quality of numerous fruit and vegetable crops. Many of these are cash crops in their own right, and increasing crop quality and yields through better pollination results in additional profits. In addition, honey bees have a large role in forest ecology through the pollination of trees and other natural vegetation. Economy of the country is mainly depends on agriculture. So the necessity of beekeeping, its expansion and development is sustainable and its potentiality is vast in favor of the agriculture based rural economy of India. Remarkable achievement may be made in the field of agricultural and horticultural production through cross-pollination.

We argue that beekeeping contributes to all four fundamentals of sustainability: (1) to environmental sustainability, as the beekeepers come to understand the link between beekeeping and forest conservation; (2) economic sustainability, by being a low-input rural activity that provides strong economic returns; (3) cultural sustainability, by being an activity that integrates well with other agricultural activities and that can be practiced by men, women, and youths; and (4) social sustainability, by reducing poverty and enhancing quality of life. Bee products also constitute important ingredients of folk and traditional medicine.

SHELL ACCREATION WITH RESPECT TO IMPROVE QUALITY AND QUANTITY OF PEARL IN THEIR ARTIFICIAL CULTURE

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Abstract:

Since early civilization man uses lustrous pearl for adornment. It is generally produced by marine oysters at the sea bottom. Day by day demand for these pearls is getting on increase. To fulfill this demand of pearls, Pearl culture a technique is used to produce pearls by using freshwater bivalves artificially. The first practical work to produce pearls artificially was done by the Chinese in the 13th century, in the freshwater mussel in Lake Tahu in Central China. However, the credit for the development of modern pearl culture goes to Japan. They developed pearls in the marine pearl oyster in 1893 by Mr. Kokichi Mikimoto who is now known as Father of Pearl Culture. In 1966, marine cultured pearl production was 127 tonnes and in 1973, 34 tonnes and freshwater cultured pearl 7 tonnes and tremendously increased now. From Japan this technique spreaded to Australia, South-east Asian countries such as Burma, Philippines, Malaysia, Thailand and Indonesia.

The major marine species of pearl culture in Japan is *Pinctada fucata* and freshwater species *Hyriopsis schlegelii* from the lake. In Australia and South-east Asian countries *Pinctada maxima. P. margaritifera,* Pteria *penguin* used to culture pearls. In India technological success came about only in 1973 in Central Marine Fisheries Research Institute based at Tuticorin by using *P. fucata*.

The shell of pearl oyster or freshwater bivalve is composed of three layers. The outermost layer is the organic conchiolin layer or periostracum. The middle prismatic layer is composed of several layers of calcite crystals of calcium carbonate arranged vertical to the surface of the shell. The calcite crystals are cemented to one another by a thin layer of conchiolin. The innermost nacreous or mother-of-pearl layer is composed of microscopically small irregular, roundish or polygonally formed laminate of aragonite crystals which are the pseudo-hexagonal modification of calcium carbonate. The aragonite laminae lie terrace-shaped, one above the other, and are arranged parallel to the surface of the interior of the shell (Alagarswami, 1984).

A similar structure to shell is pearl of the oyster or bivalve, which is made from the same material of calcium carbonate and hence study of shell structure and its formation showed the correlation between the pearl and shell. During artificial pearl culture, the insertion of the implant and this little surgery is followed by the post-operativel care suggesting the reduction of mortality if water containing antibiotics is added.

In the present study, one of the tries done by using trimethoprim, one of the components of sulfa drugs for healing the wound and regeneration of the shell by using a freshwater bivalve, *Lamellidens corrianus (Lea).* The chemical composition of shell of bivalves grown actively reflects the concentrations of elements present in the culture water (zinc, Romeril, 1971; lead and cadmium, Sturesson, 1976, 1978; magnesium, Lorens and Bender, 1977; calcium, Sick *et al*., 1979). Likewise during post-operative care antibiotic treatment has some effect on the quality and quantity of the pearls which is found out through this study and obtained promising results.

IMPACT OF COVID-19 AND LOCKDOWN ON ENVIRONMENT AND BIODIVERSITY

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Abstract:

Suitable environment is a necessity for survival of entire biota including humans. Environmental change is one of the biggest challenges of the 21st century. In spite of all their efforts to restore the nature during the last few decades, humans could only move a few steps forward, not up to the commendable extent. But during the last few months, consequences of the COVID-19 pandemic and following lockdown have successfully recovered the environment to a large extent that should definitely set positive impact on global climate change. It of course changes the daily behavior of humans and the surrounding ecological system. The present review article deals with the multiple positive effects of lockdown on environment and society including biodiversity. It has given a severe impact on global and national economies irrespective of the level of virus impact on the people of individual nations. The novel corona virus has no border, no religion and spread beyond cast and creed. It is highly contagious in nature and easily unpredictable. World was never prepared for this kind of pandemic, where we are in a race of developing a vaccine against its spread. The new COVID-19 seemed very contagious and has quickly spread globally. The corona has proved that although humans are a superpower and have weapons that are capable to destroy the whole world but still if humans are creating mess with nature then even now nature is itself powerful to destroy humans with this small virus which is having very common symptoms like cold and cough. The Covid-19 has proved that Nature has provided us with all the resources for leading a beautiful life and she nourishes us like a mother, humans should respect and nurture her. Indiscriminate development and overexploitation of natural resources should be minimized at the level of sustainability. The Covid-19 and lockdown exerted negative impact on economy, education and employment but positive impact on climate change, global warming, biodiversity and environment. It has mixed impact on society and family life.

RECENT TRENDS IN FRESHWATER AQUACULTURE

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Abstract

With the increasing human population, food production industries need to expand. With almost seven billion people on earth, the demand for aquatic food is increasing and hence, expansion and intensification of aquaculture production are highly required. In order to preserve the environment and the natural resources, this expansion will need to take place in a sustainable way. The main goal of aquaculture expansion must be to produce more aquaculture products without significantly increasing the usage of the basic natural resources of water and land. The second goal is to develop sustainable aquaculture systems that will not damage the environment. The third goal is to build up systems providing an equitable cost/benefit ratio to support economic and social sustainability. All these three prerequisites for sustainable aquaculture development can be met by biofloc technology and RAS. These technologies are popular amongst the pisciculturists working in the area where there is water scarcity. Recent trends have revealed the increasing use of probiotics in system as well as in the aquafeed.

Biofloc technology is a technique of enhancing water quality in aquaculture through balancing carbon and nitrogen in the system. The technology has recently gained attention as a sustainable method to control water quality, with the added value of producing proteinaceous feed in situ. The beneficial effects of this technology and some challenges for future research will be discussed in this lecture.

NUTRACEUTICAL FARMING: A PREVENTIVE MEASURE

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Abstract:

Using food products to promote health and cure disease is well known. India has had a rich heritage of herbal medicines, botanicals and food supplements, which have found resonance in its tradition and folklore. The nutraceuticals market is in fact indigenous to India as most of its ingredients are grown mostly in the country. India's nutraceutical sector is set to grow from US$ 4 billion in 2017 to US$ 18 billion in 2025.Currently, most of the drug molecules available in the formulations were anciently used in their crude form. A large number of nutraceuticals are available from various sources and its significance is now known. The nutraceutical industry has raw materials, ingredients, and formulations. Traditionally, India was a producer of just the raw materials, but today the ingredients and formulations segments are also growing, thus creating a potential for strong growth in the domestic market and exports. Further, the regulatory status of nutraceuticals and latest trends in nutragenomics are regulated by new Farm laws. The Food Safety and Standards Authority of India (FSSAI) will ensure that regulations for the nutraceutical market in India are at par with other global standards.

ANTS BIODIVERSITYAND THEIR ROLE AS ECOSYSTEM ENGINEERS

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Abstract:

Ants are one of the groups of arthropods belonging to class Insecta and together with the social wasps and bees constitute 80% of the biomass. These ants are grouped in to single family Formicidae of the order Hymenoptera. Ant species assemblage has been used as a biological indicator of environmental conditions. The Formicidae is subdivided into 21 subfamilies comprising 290 genera and more than 12,500 extant species Bolton *et al*., (2006).

Ants are substantial components of all terrestrial ecosystems and their effects are often described as ubiquitous in most ecosystems. This is not only because they constitute a great part of the animal biomass but also because they play significant role in ecosystem performance. Biodiversity of ants is very high and these are highly responsive to human impacts, which reduce its richness. The effects of ants are often described as substantial, as their presence affects both above and belowground processes through the alteration of the physical and chemical environment and through their effects on plants, microorganisms, and other soil organisms. Ants are greatly affecting the physical, chemical and biological properties of the soil. The construction of corridors and galleries within nest is affecting the physical properties of the soil. Ants also bring out chemical changes in soil mainly in the form shift of soil pH towards neutral, increase in nutrient content in the form of nitrogen and phosphate in the nest constructed soil. The role of ants in ecosystems is discussed, mainly in the view of the effects of ground-dwelling ants on soil processes and function, emphasizing their role as ecosystem engineers.

ENVIRONMENTAL SCENARIO DURING COVID-19 PANDEMIC

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Abstract:

COVID-19 Pandemic has changed the way we live and work, as various health and safety restrictions keep more of us at home more often. The resulting changes to our behavior are already impacting the environment around us in myriad ways. The measures taken to control the spread of the corona viruses and the slowdown of socio-economic activities have significant effects on the environment. Therefore, present study aimed to explore the positive and negative environmental impacts of the COVID-19 pandemic, by reviewing the available scientific literatures. This study indicates that, the pandemic situation significantly reduced the air pollution and improves air quality in different cities across the world, reduces GHGs emission, lessens water pollution and noise, and reduces the pressure on the tourist destinations, which may assist with the restoration of the ecological system. In addition, there are also some negative consequences of COVID-19 pandemic, such as increase of medical waste, haphazard use and disposal of disinfectants, PPE kits, mask, and gloves; and burden of untreated wastes continuously endangering the environment. If the situation of COVID-19 pandemic worsens, there are few strategies that may be implemented in proper way for sustainable environment.

STUDY OF PHYTOPLANKTON OF LAKE BHIVAPUR, TAQ.- TIWASA, DIST. AMRAVATI

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Abstract:

Phytoplankton which are present were in natural water bodies of Bhivapur lake were studied. Phytoplankton such as Chlorophyceae, Cynophyceae, Basillariophyceae, were studied during year 2019-20. In present investigation, above phytoplankton were the indicators of waer pollution.

Keywords: Phytoplankton, Chlorophyceae, Cynophyceae, Bhivapur

PHYSICO-CHEMICAL CHARACTERISTICS OF SEWAGE WATER FROM HINGOLI CITY, MAHARASHTRA

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Abstract:

Sewage water is wastewater from people living in a community. It is the water released from households after use for various purposes like washing dishes, laundry, and flushing the toilet, thus the name wastewater. The used water moves from the houses through pipes installed during plumbing. The sewage water then moves into sewers, either constructed by the house owner, or into a sewer facility set up by the municipality. Increasing industrialization and population cause increase in living of standard which results decrease in the quality of water. Due to generation of maximum sewage, it flows in open drainage and some percolate in soil. The sewage from Hingoli city is flows and mixed up into Kayadhu River. For the study of physicochemical parameters two points were selected. One where actual flow is discharged and another is one km away from this point in between these points many weeds were present. Monitoring of water from these two points were done after regular intervals. Sewage analyzed for various physicochemical parameters such as pH, temperature hardness, chloride, total dissolved solids, total suspended solids, total alkalinity, BOD, COD, sodium, potassium, etc. The result from these study shows that various physicochemical parameters were reduces at second point. It indicates that the weeds were accumulating the various constituents from the sewage and were helping for reduction of water pollution. There is a dire need for sewers to be emptied owing to the increasing use of water by people. Therefore, treatment is essential. It ensures the water released into the local water ways such as rivers is safe and clean with an aim of ensuring it does not cause harm to the people or the aquatic life. To ensure the waste water is clean and safe, there are various steps involved in the treatment process.

Keyword: Sewage water, physicochemical parameters, weed, treatment.

SPECIES RICHNESS AND DISTRIBUTION OF OSTRACODA OF SONALA DAM, SONALA, DISTT. WASHIM (M.S.) INDIA

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Abstract:

The paper deals with Species Richness and Distribution of Ostracoda of Sonala Dam, Sonala, Distt. Washim (M.S.) India. Sonala dam is an earthen dam, constructed by irrigation department of Maharashtra Govt. The dam is presently used for irrigation and drinking for regional rural areas. Ostracods are bivalved micro crustaceans found almost in all types of water bodies and are one of the most diverse groups of living crustaceans. The population density of ostracod of Sonala Dam, Sonala was monitored for one year. Samples were collected using plankton net of bolting silk cloth No.25 (56 mesh size and analysed with standard keys. Quantitative estimation is done by drop count method of Lackey. A total of 4 species from the dam water were identified. Results indicate that the population of Ostracoda was maximum during the summer season and minimum during the winter season. Distribution of Ostracoda was influenced by environmental factors like temperature, DO, salinity and sediment decomposition. Conservation of this water body is essential, as this habitat may reveal interesting ostracod fauna present there. There is no report of study on the species richness and distribution of ostracods in this reservoir and that is the reason the present study was planned.

Keywords: Sonala dam, Diversity, Ostracods, Zooplanktons

HABITAT SPECIFIC VARIATION IN THE METABOLISM OF FRESHWATER MUSSEL, *LAMELLIDENS MARGINALIS*, (LAMARCK) FROM NATHSAGAR RESERVOIR AT PAITHAN (M.S.) DURING MONSOON

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Abstract:

Various environmental factors influence molluscs species distribution and physiological processes. Considering the habitat-specific variations, in the metabolic responses such as rate of oxygen consumption, rate of ammonia excretion, and O: N (oxygen: nitrogen) ratio of freshwater mussels, *Lamellidens marginalis* in collected two different habitats (i.e. lentic and lotic) from Nathsagar reservoir, at Paithan, during monsoon (August and September Month) were studied. The mussels from the lentic habitat showed a high rate of oxygen consumption and a low rate of ammonia excretion in September. But in animals from the lotic habitat in August, the rate of oxygen consumption slightly increased and the rate of ammonia excretion and O: N ratio gradually decreased. The study supports help in understanding the interaction of habitat on the metabolic activity of the animal.

Keywords: Mussels, *Lamellidens marginalis*, habitat, ammonia excretion, oxygen consumption, O: N ratio.

SUBMERGER BIOFILERS FOR RECIRCULATING AQUACULTURE

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Abstract:

Submerged biofilters are used in recirculating aquaculture systems for treatment of wastewater generated from fish ponds due to presence of uneaten food material, fish faecal matter, growth of algae and other microorganisms. These types of biofilters presume that enough amount of dissolved oxygen is present in wastewater to be treated for providing it to biofilm. Submerged biofilters can be packed, expanded or expandable. Packed bed submerged biofilters includes submerged rock, plastic packed bed and shell filter. Expanded bed submerged biofilters includes fluidized sand filter, moving bed bioreactor and downflow microbead. Expandable submerged biofilters can be floating bead bioclarifier, upflow sand filter and foam filters. This paper reviews submerged biofilters for treatment of wastewater in recirculating aquaculture systems.

Keywords: Aquaculture, submerged biofilter, dissolved nutrients, fish production, pond, wastewater treatment

BENEFACTION OF AQUATIC ECOSYSTEM IN BIODIVERSITY AND FISHERIES

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Abstract:-

Freshwaters are one of the ecosystems most heavily affected by human activity. Major impacts on biodiversity include pollution, habitat loss and degradation, draining wetlands, river fragmentation and poor land-management. Biodiversity of fish can and does serve as indicators of ecosystem health. Freshwater biodiversity is threatened and has declined in many areas as a result of these impacts. Aquatic ecosystems (inland and marine) represent the most biodiversity sources of food consumed by humans. This includes vascular plants and algae, and animals such as crustaceans, mollusks, reptiles, amphibians and finfish. Freshwater ecosystems cover only about 1 percent of the earth's surface, but provide habitat for over 45 percent (13,500) of the world's freshwater fish species. Another 2,100 species of fish can also live in brackish water. The geotropically regions contain the highest amounts of fish biodiversity and the tropical and subtropical floodplain rivers and wetlands are the with the highest levels of biodiversity. Rice fields are an important source of biodiversity and include over 200 species of fish, insects, crustaceans, mollusks, reptiles, amphibians and plants (in addition to rice) that are used by local communities. Many freshwater species are important to the aquaculture industry as sources of bloodstock for spawning and early life history stages (e.g. eggs, larvae) for on growing. Non-native aquatic species can contribute significantly to the production and value in inland fisheries and aquaculture

Keywords: *Fisheries, Livestock, Aquatic Ecosystem, Biodiversity*

IMPACT OF CYPERMETHRIN ON GLYCOGEN CONTENT OF LIVER AND INTESTINE OF FRESHWATER FISH *OPHIOCEPHALUS ORIENTALIS*

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Abstract:

Pyrethroids insecticides, including cypermethrin are widely used for the control of insect pests all over the world to increas the production of food grain and other agricultural products. The intake of insecticides affects the biochemical composition of fishes. The effect of cypermethrin on glycogen in liver and intestine of Ophiocephalus orientalis exhibited notable alterations. Liver and intestine being the main site of metabolic activity in body was selected for the study purpose. Dns(Di nitro salicyclic acid) Sadasivam and Manickam (1992) method was adapted for estimation of glycogen in tissues of freshwater fish Ophiocephalus punctatus and measured in The sub lethal concentration of cypermethrin treated with Ophiocephalus orientalis at different time interval and in the treated liver and intestine, glycogen content showed declined trend.

Keywords: Pyrethroids, cypermethrin, *Ophiocephalus orientalis*, Liver, Intestine

REPORTING STATUS OF *LYTOCESTUS AMBAE,* KAKNKALE 2017

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Abstract:

Nilima Kankale (2017) published a new Species of Caryophyllaeid Cestode *Lytocestus ambae* collected from the intestine of *Clarias batrachus* at Wadali dam, Amravati district (M.S). Since the worm collected is mature the eggs are not reported, and compared with only 08 species irrespective of existing 52 species till 2016. By observing the diagram in the journal some remedies and validity of *ambae* is questioned as new species.

Keywords: Cestode, *Clarias batrachus, Lytocestus*, review, status.

EFFECT OF BIOCHEMICAL VARIATIONS INDUCED BY PESTICIDE-PHOSALONE IN CIRRHINA MRIGALA

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Abstract:

Present study deals with the effect of pesticide-Phosalone on carbohydrates. Proteins, and lipids level in *Cirrhin mrigala*. For find out the level of carbohydrates, proteins and lipids biochemical estimation of different organs of fish such as gills, liver, intestine and kidneys were used. The level of different food constitution in all organs were decreased with increasing concentration of pesticide- phosalone in 2, 4, 6 and 8th days.

Keywords: pesticide-Phosalone, carbohydrates, Proteins, lipids and *Cirrhina mrigala.*

SEASONAL ANALYSIS OF FISH DIVERSITY FROM RURAL PONDS OF BHOPAL DISTRICT, MP, INDIA

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Abstract:

In the Joonapani pond 16 fish species in pre-monsoon season, 6 species in monsoon season and 12 species in post monsoon season were recorded. In the Bhojapura pond 11 fish species in pre-monsoon season, 4 species in monsoon season and 7 species in post monsoon season were recorded. The fish fauna diversity was higher in pre-monsoon season followed by post monsoon season and was least in the monsoon season. The order Cypriniformes has shown the major Ichthyofaunal diversity in the three seasons in the two selected ponds.

Keywords: Berasia block, Bhojapura pond, Joonapani pond, Fish diversity, Ichthyofaunal

EFFECTS OF DIETARY BITTER GOURD (*MOMORDICA CHARANTIA*) ON GROWTH PERFORMANCE OF INDIAN MAJOR CARP CARP (*LABEO ROHITA*) FINGERLINGS

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Abstract:

In this experimental study we were designed five experimental diets with containing changeable concentration of five experimental diet was prepare by various concentration of Bitter gourd (*Momordica charantia*) powder as.25g/kg(D2), 50g/kg(D3), 75g/kg (D4) and 100g/kg(D5). with full fat soybean diet D1 used as control where no Bitter gourd were used.at the end of the experiment we were note that Initial weight, final weight, weight gain, specific growth rate and survival rate of labeo rohita fingerlings were significant . The highest weight gain and specific growth rate values, at the end of the experiment. FCR and PER values were also recorded in fish fed D3 (50g/kg of diet) and D4 (75g/kg of diet). Fish fed Bitter Grout significant differences were recorded in the survival rate among groups best survival rate was found at D3 and D4 followed by D5 ($p > 0.05$).it clearly indicates that from 50 to 75 gram per kilo gram of bitter gourd work better than full concentration i.e.100 gram per kilogram of diet. Energy utilization (EU, %) were noted significantly good at D3 and D4 followed by D5 D2 and control D1 which shows fishes respond well to dietary bitter gourd as supplement.

Keywords: Bitter gourd (*Momordica charantia*), Growth performance, Indian major carp (*labeo rohita*) fingerling.

SURVEY ON PROPORTION AND DETERMINANTS OF POLYCYSTIC OVARIAN SYNDROME AMONG FEMALES (14 TO 45 AGE) OF BHIWANDI

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Abstract:

Reproduction is the utmost important process for every organism on the earth continuity of life depends on it. Human female however cannot discuss the problems related to reproductive cycle/menstruation openly. Bhiwandi is a small town in Thane district. PCOS or polycystic ovarian syndrome is the condition seen to be increased in the last decade. Many of the reproductive aged women are unaware of the conditions like this. In this paper baseline information is collected from developing Google form questionnaire to record their age, knowledge about PCOS, health history like diabetes mellitus, hypertension, stress disorder, Anemia, Hypothyroidism .Information is also noted for use of oral contraceptive, any other medical disorder, Infertility, skin disorders like acne, medical treatment, Anorexia, obesity, status of menstrual cycle. This study aims to find out the status of female. PCOS in small town Bhiwandi and mat throw some light on root causes of it.

Keywords: PCOS, Infertility, Menstruation Bhiwandi

EFFECT OF DIAZEPAM ON THE DEVELOPMENT OF *CHRYSOMYA MEGACEPHALA* (DIPTERA: CALLIPHORIDAE)

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Abstract:

Chrysomya megacephala species of the calliphorid flies were collected on the decaying meat in the Aurangabad region. The life cycle includes egg, three instars, pre-pupa, pupa and adult stages. Alterations in the life cycle of *Chrysomya megacephala* species was studied after exposure to diazepam. Diazepam, a sedative drug lowered the rate of growth at higher concentrations. The pupation last longer in *C. megacephala*. The adult emerged out after nine days in control while at 12 ppm and 16 ppm diazepam containing food, the adults emerged out after 10 and 11 days respectively.

Keywords: Calliphorid, *Chrysomya megacephala,* diazepam, life cycle.

IMAGE ANALYSIS OF WOUND HEALING TREATED WITH THREE MEDICINAL PLANTS

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Abstract:

Hamiltonia suaveolens, Sphaeranthus indicus and Ziziphus jujuba Mill are one of the most important traditional medicinal plants. The primary indigenous use of these plants appears to be of the leaves, flowers and root as a topical treatment for wound healing. The Methanol extract of leaves, flower and root of these plants were used to evaluate the wound-healing activity in rats, using excision wound model. Animals were randomly divided into six groups of six for each model. Test group animals in each model were treated with the Methanol extract of *H. suaveolens, S. indicus and Z. jujuba* topically in the form of ointment and the control group animals were maintained with no application. Healing was assessed by the rate of wound contraction, time until complete epithelialization. On 16^{th} day, the extract-treated animals exhibited 100% reduction in the wound area when compared with controls which exhibited 63%. Conclusively, increase in percentage of fibrin followed by granulation and decrease in percentage of necrosis results into the admirable process of healing. Thus, in the present study *H. suavolens* and *S. indicus* have high percentage of necrosis as compared with *Z. jujuba*. Thus, this plant demonstrated outstanding activity as compared to placebo and standard group of animals.

Keywords: Excision wound model, Image analysis, *Hamiltonia suaveolens, Sphaeranthus indicus and Ziziphus jujuba*

TOXIC EFFECTS OF PESTICIDE DIAFENTHIURON ON WINGS OF *DROSOPHILA* SPECIES

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Abstract:

A laboratory conditions were setup for fruit fly to evaluate the toxic effects of Diafenthiuron of various grades on adult *Drosophila* species in order to study the phenotypic changes. The adult flies randomly were subjected to toxicity effect up to two generations and the second generation fly wing was studied and the angle change in their venation pattern was noted. The variation was observed in wing venation pattern, which reveals that genomic changes might be there.

Keywords: Phenotypic, Venation, Toxicity, Diafenthiuron, Variation.

CRITICAL EVALUATION OF *LUCKNOWIA MASTACEMBELI* BIDYALAKSHMI AND GAMBHIR, 2019

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Abstract:

A new Caryophyllidean Cestode *Lucknowia mastacembeli* was reported by Bidyalakshmi *et al.* (2019) which they claimed to have recovered from the intestine of *Mastacembelus armatus* (L.) a fish host at Moreh, Manipur. The description is too scanty and suffers from a number of lacunae such as demarcation line at the base of scolex, the commencement of testicular and vitelline follicles not shown in the camera lucida drawing, male & female genital openings not shown in the drawings as well as in photomicrographs, provided a table of comparison between *Lucknowia fossilisi* (Gupta, 1961) Ash *et al.* (2011); *Lucknowia microcephala* (Bovien,1926) Ash *et al.* (2011) and not with the original description of *Lucknowia fossilisi* described by Gupta (1961), vide. *Hel. Soc. Washington* vol. **28(1):** 38-50. They failed to compare the claimed n. sp. *Lucknowia mastacembeli* with *Lucknowia ovocompactum* Singh, Sharma and Rastogi (2001).The present authors have critically assessed the placement of *Lucknowia mastacembeli* & suggested molecular characterization in addition to morphotaxonomy after studying large number of specimens.

Keywords: *Lucknowia mastacembeli,* status, critical review, synonym.

STUDY OF *EIMERIA OVINA* IN SHEEP FROM BEED, MAHARASHTRA STATE INDIA

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Abstract:

During the period of two years total number of 2462 samples were examined. 594 of these were positive for coccidial infection, the percentage of prevalence being about 24.12%. The present study ten species of *Eimeria* are found in sheep, eight species are redescribed and two are new species.

Keywords: *Eimeria,* Coccidia, oocyst, sporocyst, sporozoite

A STUDY ON NON-SPECIFIC ENZYME IN RELATION TO GLYCOGEN CONTENT IN THREE NEMATODES OF GOATS OF JAFRABAD REGION

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Abstract:

Non specific phosphoesterases (E.C. 3.1.3.1) enzyme activity and glycogen content have been observed quantitatively to be more in females as compare to male of *Haemonchus contortus, Oesophagostomum columbianum* and *Trichuris ovis*. The role of enzyme activity in relation to glycogen content is discussed.

Keywords: Non-specific enzyme, nematodes, Jafrabad region.

MORPHOTAXONOMICS OF TWO NEW SPECIES OF PTYCHOBOTHRIDEAN TAPEWORMS FROM FRESH WATER FISHES OF PUNE, M.S., INDIA

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Abstract:

The Genus *Circumoncobothrium* was erected and established by Shinde (1968) with the type species *Circumoncobothrium ophiocephali* obtained from the intestine of the freshwater fish *Ophiocephalus leucopunctatus* has subsequently been enhanced with over 40 different species by different researchers working at different geographical locations and with a diversity of freshwater fishes. The present communication deals with morphotaxonomical description of two new species of the *Circumoncobothrium Oreochromisae sp.nov* from intestine of fresh water fish, *Oreochromis mozambica* at Pashan Lake and *Cicumoncobothrium shakulwantae sp.nov* from the intestine of the freshwater fish *Ophiocephalus punctatus* at Panshet Lake, Pune, Maharashtra India.

Circumoncobothrium Oreochromisae sp.nov, is characterized by an elongated, conical flask shaped scolex bearing a pair of fleshy bothria; a rostellum armed with 30-34 unequal sized hooks, in a single circle, arranged into quadrants: a short neck; squarish nature proglottids bear follicular, rounded testes 120-160 in number, arranged on both lateral sides of the bilobed ovary, having unequal lobes, connected by a narrow isthmus, follicular vitellaria are arranged in 2-3 lateral rows. *Circumoncobothrium shakulwantae sp.nov.* is characterized by a large cylindrical scolex tapering at apex, having a pair of large ovoid bothria; rostellum bears 48-50 hooks of varying sizes; elongated neck is present; testes oval 320-340 is each proglottid; distinctly bilobed post equatorial ovary; lobulated vitellaria in 1-2 rows. The distinct characters mentioned above, justify the recognition of the two Ptychobothridean sp as new species.

Keywords: *Oreochromis mozambica, Ophiocephalus punctatus, Circumoncobothrium Oreochromisae sp.nov, Circumoncobothrium shakulwantae sp.nov* Pune.

TAXONOMETRIC EVALUATION OF A NEW MAMMALIAN CESTODE, *STILESIA* RALLIET 1893 (CESTODA: THYSANOSOMIDAE) INFECTING *CAPRA HIRCUS* AT BHADGAON, M.S. INDIA

Avinash Bhangale, Ajit kalse and Khushal Bhavsar

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Abstract:

The genus *Stilesia* was erected by Ralliet in 1893 with its type species *Stilesia globipunctata* (Revolta 1874) from *Ovis aries*. The present communication deals with a new species *Stilesia bhadgaonensis* is collected from Goat *Capra hircus* at Bhadgaon, M.S., India. The present form differs from all known species, having characters as scolex dome shaped with four suckers; neck medium; mature segments are wider than long; genital pore irregularly alternate; testes 3-4 in number, unevenly distributed; cirrus pouch medium, oval; cirrus thin, unarmed; vas deference long, coiled; ovary small, single mass, near posterior margin, with acini; vagina posterior to cirrus pouch.

Keywords: *Stilesia bhadgaonensis*, Bhadgaon, Capra hircus.

GROWTH AND SPORULATION OF SEED BORNE FUNGI OF BHENDI

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Abstract:

Plant resources have made substantial contribution to human welfare. The progress of human beings has been associated with the use of plant resources especially for the supply of food, fuel, fiber and medicine. The Indian economy depends greatly on the number of wild plant species. Human beings have cultivated more than 7000 plant species for food throughout the history. Today only 20 species provide 90% of the world's food and just three species mainly wheat, rice and maize supply more than 50% of the world's food. Plant diversity is a great source of medicines. The biochemical's present in the vast majority of the plant species are the great reservoirs of new and potential drugs. The plant resources are the major sources of the antimicrobial agents. They can be used for monitoring the environmental changes.

In the present study total phenol content (TPC) and common seed borne fungi of Bhendi was determined. Effect of ten wild medicinal plant leaf extract on the spore germination, dry mycelial weight and sporulation were carried out of selected three seed borne fungi *Alternaria tenuis, Curvularia lunata and Fusarium oxysporum*. It is evident from results that Dry mycelial weight, sporulation and spore germination inhibited by leaf extract of the medicinal plants Solanum xanthocarpum, Semecarpus anacardium and more Dry mycelial weight, sporulation and spore germination found in the leaf biomass extract of *Vitex negundo, Balanites aegyptiaca* and *Helicteres isora* as compared to other test medicinal plants.

Key Words: Sporulation, Bhendi, Medicinal plants, Dry mycelial weight, TPC, fungi etc.

ON A NEW CESTODE OF *MONIEZIA* (CESTODA-ANOPLOCEPHALIDAE) FROM THE INTESTINE OF *CAPRA HIRCUS* (L.) FROM GHANSAVANGI, DISTRICT JALNA (M.S.) INDIA

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Abstract:

The present investigation deals with systematic observation of the cestode parasites *Moniezia* Blanchard, 1891, that is, *Moniezia mehdii* Sp. Nov. collected from the intestine of domestic goat *Capra hircus* Linnaeus, 1758 at Ghansavangi, District Jalna. The present worm comes closer to all the known species of the genus *Moniezia* in general topography of organ but differs due to having the scolex small squarish, mature proglottids nearly two times broader than long, testes small, oval to rounded in shape, 130-140 in numbers, cirrus pouch large cylindrical, ovary horse-shoe shaped, vitelline gland post ovarian, inter proglottidal glands 15-16 in numbers.

Keywords: Anoplocephalidae, *Capra hircus*, Jalna, *Moniezia*

TAXONOMIC OBSERVATION OF TAPEWORM AND HISTOPATHOLOGICAL STUDIES ON INFECTED INTESTINE OF *CAPRA HIRCUS*

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Abstract:

The present investigation deals with taxonomic observation of new tapeworm of genus *Aliezia* viz. *Aliezia kalsei* n. sp., collected at Shirud, Tq. & Dist. Dhule, (M.S.), India. The worms general topography show scolex medium, quadrangular, with 4 suckers; neck medium; mature proglottids larger; interproglottidal glands small, 8-12 in number; testes 3-6 in number; cirrus pouch medium; cirrus thin; ovary medium; vagina posterior to cirrus pouch; ootype and vitelline glands absent; genital pores small, gravid segments broader than long par uterine show Oncospheres. Histopathological study show heavy infection of *Aliezia kalsei* causing damage to intestinal layers showing deep ulceration.

Keywords: *Aliezia kalsei*, Shirud, histopathology, intestinal layers, *Capra hircus.*

HISTOPATHOLOGICAL STUDY OF *LYTOCESTUS* SPECIES INFECTION IN HOST INTESTINE *CLARIAS BATRACHUS* (L) FROM KHAM RIVER, AURANGABAD (M.S) INDIA

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Abstract:

In the present investigation occurrence and pathological changes caused by cestode parasites *Lytocestus* Species in the intestine of fresh water fishes, *Clarias batrachus* (Linn.) from Kham river, Aurangabad (M.S) India are studied. The worm *Lytocestus* Sp. attached to the intestine of host *Clarias batrachus.* In T.S. of intestine of *Clarias batrachus* it has been observed that the cestode attached to the intestinal layer and slowly damaged the host intestinal villi, invaded deep and sucking the content in the region of villi.

Keywords: *Clarias batrachus*, Histology, Kham River, *Lytocestus.*

PREVALENCE OF COCCIDIOSIS IN GOAT IN VAIJAPUR TEHSIL OF AURANGABAD DISTRICT OF MAHARASHTRA

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Abstract:

Coccidial infection is universal and the young one of goats are more susceptible for coccidial infection. The subkingdom protozoa, having genus *Eimeria,* showing majority of parasitic protozoan causing coccidiosis in various vertebrates. Parasitological, gross and microscopic examinations revealed *Eimeria* infection was common in goat.

Extensive survey from June 2020 to January 2021 was carried out to record the prevalence of Coccidia in goat in Vaijapur tehsil of Aurangabad district. Material for this investigation was obtained from various villages and fields around the Vaijapur tehsil. The collected faecal samples are placed in separate plastic pouch and keep in the refrigeration until examination. During the period of eight months total 583 samples were examined, out of which 126 were positive for coccidial infection, the percentage prevalence is **21.61%.**

Keywords: Goat, Coccidia, Vaijapur, prevalence etc

BIO-SYSTEMATIC STUDIES ON *COTUGNIA KALPITAE* N. SP. (CESTODA: DAVAINEIDAE) FROM SONGIR (M.S.)

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Abstract:

The genus *Cotugnia* was erected by Diamare (1893) with the species *C.diagonopora* collected from domestic fowl. Six specimens, of the cestode parasites, were collected from the intestine of a domestic fowl, *Gallus gallus domesticus.*The present cestode have medium scolex,quadrangular in shape.The rostellum is armed with numerous hooks, The testes 150 to 160 (155) in number,ovary multilobed, medium in size,ootype small, rounded.It was compared and differs from five species.

Key words: *Cotugnia*, *Gallus gallus domesticus*, ovary.

STUDY OF DIVERSITY OF MOSQUITOE'S FROM PARBHANI CITY (M.S.) INDIA

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Abstract:

Insects show greater diversity due to their ability to adapt to the changes in the environment. Among all insects, diversity of mosquitoes is of greater importance in terms of public health. Mosquitoes that inhabit water habitats play an important role in the ecological food chain, and many of them are biters and transmitters of human and animal diseases. Except these role today we don't known the role of mosquito in an ecosystem concern to these role it is very important to study the distribution and diversity of mosquito in these ecosystem as it is very important in concern with development and human health. Mosquito diversity was studied in 21 spots from parbhani city during repeated visit to same collection spots. These spot chosen from the view of Residential, Educational and public places where more chances to mosquito born disease transmitted from July 2008 to June 2009. Seven species of mosquito's belonging to 3 genera were collected and identified as *Anopheles.stephensi*, *An. culicificies*, *An. subpictus*, *An. Sephetes*.. *Culex fatigens, Culex argimerges*. And *Aedes aegypti* .In the present study the intensity and density of different mosquitoe's at different localities of Parbhani is also recorded.

Keywords: Mosquitoes, Diversity, Intensity, Density, Parbhani.

CENSUS OF BEETLES (COLEOPTERA) OF SHAHADA TAHSIL DIST. NANDURBAR

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Abstract:

In the present investigation total 21 species belonging 19 genera under the 10 families of the coleoptera were recorded from Shahada tahsil of Nandurbar district. The family Viz, Scarabaedae (6 Genera, 6 Species), Gyrinidae (1 Genera, 1 Species), Coccinalidae (2 Genera, 2 Species), Tenebrionidae (2 Genera, 2 Species), Crysomelidae (1 Genera, 1 Species), Carabidae (1 Genera, 1 Species), Dyticidae (1 Genera, 1 Species), Buprestidae(1 Genera, 3 Species), Curculionidae (2 Genera, 2 Species), Meloidae(2 Genera, 2 Species)

Keywords: Coleoptera, Beetles, Shahada, Nandurbar

BIRD SPECIES ACCOUNT NEAR KAWALEWADA DAM FROM GONDIA DISTRICT OF MAHARASHTRA, INDIA

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Abstract:

Kawalewada dam is constructed on Wainganga river near Tirora tehsil in Gondia district of Maharashtra State of India. For the survey of birds, three sites Kawalewada dam, Kawalewada *talav* and Ramsagar *talav* were selected near the study area. The survey was conducted with fortnightly visits from February 2020 to January 2021 near and in the surrounding area of Kawalewada dam in Gondia district of Maharashtra State for the bird species account. Total 76 bird species including water birds and land birds were observed belonging to 38 families from the study area. Out of recorded 76 bird species, 09 species (12%) were occasional (O), 37 species (49%) were common (C) and 30 species (39%) were very common (Vc). Out of 38 families, the family Ardeidae was dominant with seven bird species. The availability of aquatic flora, flowering plants, large trees and fauna including fishes as the food for the birds which still supports the bird diversity near the selected study area. Some anthropogenic activities like daily clothe washing, direct bathing, cattle washing, irrational practices of fish catching in the water and continuous cattle grazing, changing climate and many other factors near the study area affecting the bird diversity.

BIODIVERSITY: MANAGEMENT AND CONSERVATION

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Abstract:

India is one of the mega-biodiversity countries of the world. Biodiversity play an important role because, it is the most fundamental level, and provides the basis for all life on earth, ensuring clean air and water, fertile soils and healthy, functioning ecosystems necessary to maintain sustainability. Management of all of the natural resources is also important to maintain a balance in the natural ecosystem. Biodiversity conservation is the protection and management of biodiversity. Conservation includes both the protection and rational use of natural resources Humans affect biodiversity due to population explosion, over exploitation of natural resources and unhealthy lifestyles, causing damage to habitats for species. Through proper education, implementation and decisions we can preserve biodiversity, and the human population will be able to sustain life on earth longer. Resource conservation and management provide the maximum benefit to current generation while maintaining capacity to meet the needs of future generations.

Keywords: Mega-Biodiversity, Sustainability, Management, Conservation, Resources

DIVERSITY OF MOLLUSCS AND THEIR CORRELATION WITH PHYSICO-CHEMICAL PARAMETERS OF LONDHARE DAM SHAHADA TALUKA DISTRICT NANDURBAR (M.S.) INDIA

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Abstract:

Molluscs are considered the most diverse and dominant benthic fauna both from lentic and lotic ecosystem. The diversity, seasonal variations and their correlation with the physicochemical parameters of Londhare dam have been studied during June 2012 to May 2014. A correlation between Molluscs collected by using unit cover method and water samples collected from three points from reservoir have been attempted. The biotic samples and water samples carried to laboratory for qualitative and quantitative evaluation with respect to Molluscan density and species richness while abiotic components of water have been analyzed over three seasons' monsoon, winter and summer. In Londhare dam total ten species and eight genera were recorded. Of these ten species eight belongs to class gastropod and two species of class bivalvia The value thus obtained have been used to find out correlation between water parameters and density and species richness of mollusc by keeping molluscs as dependent variables and abiotic factors as independent variables. Maximum density in monsoon and minimum in winter. The positive or negative significant or non-significant correlations of Molluscan density and species richness with physicochemical parameters of water that produce cumulative effect are discussed.

Keywords: Mollusc, Diversity, Density, Species richness, Physico-chemical parameters and Londhare dam.

A CASE OF LEUCISTIC FROGS FROM CHALISGAON, DISTRICT JALGAON

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Abstract:

Euphlyctis cyanophlyctis is commonly called as Indian Skipper Frog or Skittering Frog. Habitat include in marshes, pools and various other wetlands. The partially lossed pigmentation was observed in Euphlyctis cyanophlyctis species of amphibian near the Chalisgaon region, Dist Jalgaon. The present study was done in rainy season. However the Cytogenic analysis was not done but we can predict that this is a case of leucism.

Keywords: *Leucism in frog, Euphlyctis cyanophlyctis*

EFFECT OF ABIOTIC COMPONENTS ON FISH FARMING NEAR SILLOD TOWN, DISTRICT AURANGABAD FROM MARATHWADA REGION OF MAHARASHTRA STATE

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Abstract:

The present investigation deals with the effect of some abiotic factors on fish farming in Sillod tehsil from Aurangabad district of Marathwada region. Freshwater reservoirs in and around Sillod tehsil were used by the farmers for the purpose of fish farming as allied agricultural business. For this study small scale fish farming were selected randomly for collection of relevant information about the abiotic factors like temperature, light, humidity etc. and its effects on freshwater reservoir fish farming. From the above study it revealed that most of the fish farmers are aware about variation occurred in the abiotic factors, fish farmers of the study area agreed that fluctuation occurred in temperature, increased in light intensity and humidity has a negative effects on fish farming, some of the fish farmers agreed that changes in abiotic factors has also affect the food material available in the study area, ultimately it affects the growth performance of fish. General economy of fish farming in the study area also affected due to the high temperature. Farmers agreed that abiotic factor moisture or humidity encouraged the distribution and development of diseases in fishes. From the above observations it is recommended that there is need to create the awareness among the fish farmers about the effects of abiotic factors on fish farming and improving the production of fish farming and the economic status of fish farmers in the study area.

Keywords: Abiotic Components, Fish Farming, Aurangabad, Marathwada.

DIVERSITY AND ECOLOGY OF THE ARBOREAL ANTS (INSECTA: HYMENOPTERA: FORMICIDAE) IN CHALISGAON REGION, MAHARASHTRA, INDIA

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Abstract:

Arboreal ant diversity and their varied ecological roles make them influential in many ecosystems including agricultural and forest. During a survey of three years (2017 to 2020), 19 species of arborial ants from four subfamilies were notified in and around the Chalisgaon region, Maharashtra, India. As per the distribution of studied ants, subfamily Myrmicinae and Formicinae, represented by 8 species each followed by Pseudomyrmecinae (2 species) and Dolichoderinae (1 species).

It was noticed that all the arboreal ants use different plants for nesting or/and foraging purposes. *Oecophylla smaragdina* and *Crematogaster sp.* were completely rely on the living plants to fulfil the nesting and foraging activities. While around 80% ant species (15 species) were used the plants only for the forage where they construct nest at the base or nearby area of the foraging plants. They were feeds on the dead or live insects and other invertebrates and plant originated food assets as nectar, pollen, rotting fruits and seeds showing omnivorous feeding nature. The predaceous nature of arboreal ants may acts as a biocontrol agents against many insect pest which decline the agriculture productivity. It was also observed that 11 ant species maintain the mutualistic relationship with the plants and many honeydew producing insects including aphids, scale insects, mealy bugs and lycaenid caterpillars.

Our main goal was to collect baseline data of arboreal ants and their nesting and foraging and tending behavior that will be able to be compared with future studies conducted at the Chalisgoan region, Maharashtra, India.

Keywords: Arboreal ants, diversity, ecology, Chalisgaon (Maharashtra)

GLOBAL WARMING AND ITS IMPACT ON LIFE

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Abstract:

Since many decades the whole world is facing seviere problem of heating of earth. This heating of earth day by day since the origin of earth tremendously increasing. This seviere threat created is Global Warming. It is not a new concept but arise since from origin of earth. First sensation of Global warming arise in 1896. Concept of Global Warming put forth in 1957. Since from thirty years the temperature of surface of earth increase day by day. The concept of Global Warming is now well known for us. The protective layer of earth is ozone layer which protect the earth from harmful ultraviolet rays. The Ozone layer is depleting. The main reason is pollution & the main cause are green house gases . The effect causing by green house gases called as Green house effect. The green house gases easily emitted in atmosphere. These green house gases trapped between the ozone layer and the surface of earth creating more heat. Global Warming is now become a world wide problem. We have seen various threats caused by Global Warming. One of the main impact is Climate change. The effect of climate change is seasonal variation which had greater impact on the life. Natural calamities like Flood, Cyclones, Eathquake happened. Totally Global Warming causes long life effects and greater impact on life of not only on human but also the whole biosphere. It is now become the question of existence.

The problem of Global Warming can not solved by a single country but it is a community work by helping hands together. Various efforts taken at national & international level but it is necessary for implementation of necessary activities otherwise our earth will get destroyed.

STUDY OF HAEMOGLOBIN LEVEL IN THE GROUP OF 18-24 YEAR IN BOYS AND GIRLS

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Abstract:

In the survey we determined the quantity of Hb (8/dl). We divided the the subjects into different groups, based on age and sex. We make a comparison about percentage of haemoglobin between the College Students and between Boy's and Girl's. We divide the subjects into the age groups i.e. 20-24 (15 Subjects) in Girls and 18-24 (15 Subjects) in Boy's. In girls between 18 and 24 years of age the haemoglobin values decreased slightly, reaching about 11.36 gm/100 ml. In boys of corresponding ages there was an increase to about 16.10 gm. The quantity of the haemoglobin is very important in the diagnosis of the anaemia. Anaemia is a normal quantity of Haemoglobin present in the blood. To compare the percentage of Hb, we take the mean Hb (gm/dl) of male and females as well as of the four age groups. The mean Hb of the male was 12.83 gm/dl and for the female it is 11.83 gm/dl and for the female it is 11.93 g/dl male subjects have more amount of HB (12.83gm/dl) that the female subsets (11.93 gm/dl). By this we said that bared on the sex percentage of Hb varies, the male subjects having more amount of Hb than the female subjects.

POSITIVE EFFECT OF *APIS MELLIFERA* ON POMEGRANATE CULTIVATION

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Abstract:

Apis mellifera is also called western honey bee which pollinates many different plants world over. In Marathwada, it has been recorded pollinating pomegranate, onion, oil seed plants, maize, cucumber, sunflower plants. Aim of present study is to make farmers aware of positive effects of *Apis mellifera* on cultivation and also other native plants. The study also points out the importance of marginal plants on fields for growth of other friendly insects which also aid in pollination and collection of honey consequently.

Keywords: *Apis mellifera*, oil seed plants, marginal plants.

ALLIED TOXICITY PROPERTIES OF METHANOLIC EXTRACT OF *EULOPHIA HERBACEA* AND *EULOPHIA OCHREATA*

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Abstract:

Orchids *Eulophia herbacea* and *Eulophia ochreata* have been prooved effective in antibacterial, antiprotozoal and anthelmintic activity. Before application in the field its toxicity effect on insects and fishes must be evaluated, so in the present study the allied toxicity such as insecticidal, repellent and piscicidal evaluation **of** *Eulophia herbacea* and *Eulophia ochreata* was executed. Insecticidal and repellent activities were carried out against *Tribolium castaneum*, while piscicidal activity was conducted on *Gambusia spp*. Methanolic extract of tubers of *E. herbacea* and *E. ochreata* (Family Orchidaceae) were used for these investigation. Five different concentrations of each test plant were taken for these studies. Ten adult red flour beetles (either sex) for each concentration and ten fishes were exposed to each concentration in triplicates for insecticidal, repellent and piscicidal activity respectively. The test solutions and control were renewed after 48 h in each bioassay. In insecticidal activity, Whatmann filter paper dipping method and for repellent activity glassplate method was used. In Insecticidal, the mortality was negatively correlated with extract concentration, in piscicidal, mortality varies from 2.5 to 7.5 in case of *E. herbacea* and is also true for *E.ochreata.* In repellent activity all treatments at higher concentrations were significantly superior over control. Based on results it was found that both the orchids have no insecticidal, strong repellent and almost negligible piscicidal effect.

Keywords: Gambusia, *Tribolium castaneum*, methanolic, mortality, repellent, *Eulophia herbacea, Eulophia ochreata.*

STUDIES ON EFFECT OF YOGA PRACTICES ON OBESITY AND LIPID PROFILE OF RURAL PEOPLE

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ABSTRACT:

As an Americans in Indians obesity is the burning issue as health problems particularly in urban areas. About 30-70 % of urban people is either overweight or obese or has abdominal obesity. If BMI of the person is between 25 and 29.9 you are considered overweight and if BMI is 30 or over you are considered as obese. Generally body fat is accumulated on abdomen, thighs, buttocks and breasts may generate metabolic syndrome, diabetes, hypertension, arthritis and CVD.

Keywords: Lipid profile, Obesity, Rural people, Asanas, Pranayama, Yoga Practices.

STUDIES ON ANTIBACTERIAL ACTIVITY OF DIFFERENT EXTRACTS OF *AZADIRACHTA INDICA* AND *ANNONA SQUAMOSA*

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Abstract:

Medicinal plants are widely used throughout worldwide and use of these material had tremendously increased in past few days as world suffered from pandemic. Each part of the tree of medicinal and herbal plants having biological compounds responsible for antimicrobial activity. In the present study antibacterial activity of extract of leaves, wet bark and dry bark of *Azadirachta indica* and *Annona sqamosa* carried out on *S.typhi, E.Coli, S.Aureus, and B.subtilis.* Ethanolic and Methanolic extracts of the different parts of the plants were used for antibacterial activity. As per concern of standard antibiotics both the extracts shows maximum inhibition of these organisms. Hence the article aims to utilize the medicinal properties of whole parts of *Azadirachta indica* and *Annona sqamosa* for human welfare.

Keywords: Antibacterial activity, *Annona sqamosa*, *Azadirachta indica*, biological compounds.

EFFECT OF TEMPERATURE ON SURVIVALITY OF EARTHWORM, *EISENIA FETIDA*

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Abstract:

Earthworm is a beneficial organism and commonly called as "the farmer's friend". They are of enormous ecological importance to mankind, particularly in his agricultural endeavours, as witnessed by the effects of common earthworms on soil fertility and probably because of this they have received appreciations about their bioecology from the stalwarts like Aristotle and Darwin. The present work are designed to determine the effect of environmental factor such as temperature on survivality percentage earthworms, *Eisenia fetida*. Determined lower, higher and optimum conditions. The effect of temperature on the survivality of earthworm, *Eisenia fetida*. During the experimental period groups of earthworm, *Eisenia fetida* were kept in various temperatures like 14^0C, 20^0C, 26^0C, 32^0C, and 38^0C the result were 35%, 95%, 100%, 90%, and 40% respectively observed the percent survivality after 8 days..

Keywords: Temperature, survivality, *Eisenia fetida*

REPORTING A NEW SPECIES OF THE GENUS *KRIMI CHALISGAOENSIS* N.SP. FROM *GALLUS GALLUS DOMESTICUS*

Anam Shaikh and Ajit kalse

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Abstract:

The genus *Krimi* was established by Burt in 1944 with its type species *K. chrysocolaptis*, from *Chrysocolaptis guttacristatus stricklandi,* in Cylon. Six specimens of Cestode parasites were collected from the intestine of *Gallus gallus domesticus.* The present cestode have 75 to 80 nuber of strobilla; scolexlarge, globular in shape; rostellar sac large medium, extends in the anterior part of the scolex; 16 rostellar hooks; testes 20 to 24 in numbers; cirrus pouch medium, oval; ovary is bilobed, horse shoe shaped, each lobe with 4 to 5 rounded acini; ootype small, round; genital pores are small, irregularly alternate.

Keywords: *Krimi chalisgaonensis* n. sp., Cestode, Chalisgaon, *Gallus gallus domesticus.*

A REVIEW ON *IN VITRO* APPROACHES IN CARDIOTONIC GLYCOSIDES PRODUCER *DIGITALIS PURPUREA* L.

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Abstract:

Digitalis purpurea L. (Family Scrophulariaceae) and is a herb widely distributed in the Western Europe, Asia, North west Africa, South America, New Zealand, and Canada. The entire plant is reported as poisonous. *Digitalis purpurea* L. contains several deadly physiological and chemically related cardiac and steroidal glycosides. It is mainly cultivated for the production of cardiotonic glycosides (digitoxin and digoxin). Digitoxin and digoxin are used for strengthen cardiac diffusion and to regulate heart rhythm. During the past years, protocols for *in vitro* propagation were established for *Digitalis purpurea* L. In present review article we try to focus on *in vitro* approaches towards improvement of *Digitalis purpurea* L. using most significant and reputed research articles which were published by various workers.

REPORTING A *AVITELLINA CHALISGAOENSIS* N.SP. (EUCESTODA: THYSANOSOMIDAE) FROM *CAPRA HIRCUS* (L.)

Mohini salunkhe and Ajit kalse

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Abstract:

The present paper deals with taxonomic studies of mammalian tapeworm of the genus *Avitellina, viz. A. chalisgaonensis* n.sp. collected from the host *Capra hircus* at Chalisgaon, Dist. Jalgaon (M.S.), India. The present worm comes closer to all the known species to the genus *Avitellina* in general topography of organ but differs due to scolex medium, globular ; suckers large, oval arranged in two pairs in one plane; neck long; mature segments 28-32 times broader than long; testes are 8 in number, outer column 1 testes and inner column 3 testes ; cirrus pouch large, oval; ovary medium, single, compact mass;vagina posterior to cirrus pouch; genital pore regularly alternate and gravid segments show one sac like paruterine organ, containing eggs.

Keywords: *Avitellina chalisgaonensis* n.sp.; Chalisgaon, Tape worm, *Capra hircus*

REPORTING A SPECIES OF THE GENUS RALLIETINA LEPTOSOMA AT VINCHUR FROM GALLUS GALLUS DOMESTICUS

Ashwini Desale and Ajit Kalse

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Abstract:

The genus Rallietina was established by leptosome Deiesing,1850. Seven Speciemens,of cestode parasites, were collected from the intestine of a domestic fowl, Gallus gallus domestias (Robison and Kloss) At. Vinchur Tal and Dist Dhule M.S. India in the month of January 2019 All the Cestodes were long with thin musculature, Consisting of delicate scolex, numerous immature, mature and gravid proglottids. Scolex is medium,globular shape rostellum sac small,14rostellar hooks testies 20to25 in number cirrus pouch medium,oval,ovary is medium lobe with no.of accini, reaches and opens into the ootype, genital pores are medium size oval shape,marginal in the anterior 1/3rd part of the segment unilateral; the uterus breaks up, many uterine capsules median size oval shape,contain 4-6 egg in different capsules.

Keywords: Raillietina leptosome cestode, vinchur tal and dist dhule Gallus gallus domesticus.

MEASUREMENT OF DIVERSITY INDICES OF AQUATIC INSECTS IN LOWER PANZARA RESERVOIR AT AKKALPADA, DISTRICT DHULE, MS, INDIA

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Abstract:

Freshwater insects play important role in ecosystem functioning viz. nutrient cycling, primary production, decomposition and materials translocation. This study deals with diversity and distribution of aquatic insects from five stations in the Lower Panzara reservoir at Akkalpada, District Dhule, MS, India. The aquatic insects were sampled systematically and randomly in station-wise habitats, using standard protocols. The insect diversity varied from station to station. Dragon flies, May flies and beetles are indicative of good water quality were most diverse. The study was conducted to measure aquatic insect species diversity at Lower Panzara reservoir at Akkalpada. The objective of the study was to identify aquatic insect species diversity and main threats to them in the Lower Panzara reservoir. Data were collected by direct census method. In total, 735 aquatic insects belonging to 07 Orders and 27 species were recorded. Density of the insects was 27 per quadrate. Shannon-Weiner Diversity Index (H′) was -2.84, whereas Simpson's Diversity Index was 0.06, Simpson index of diversity was 0.939, Simpson reciprocal index was 16.7 and Species richness (Menhinick's Index) was 0.936. According to local occurrence status, there were 25 species ranked as very abundant and 02 are fairly common. There were, however, 02 species, in each category, recorded as threatened. Seasonal occurrence observed for different aquatic insect species revealed. In regression analysis, an increasing population trend observed during Winter while decreasing during Summer. The said water body is newly constructed reservoir on the Lower Panzara river. The species richness and composition are important parameters for stability and functioning of an ecosystem, therefore, there is urgent need to protect aquatic insect faunal diversity by protecting natural habitat of the area.

Keywords: Aquatic insect fauna, diversity indices, Lower Panzara reservoir.

RESTORATION OF AQUATIC ECOSYSTEM OF SAGAR VILLAGE POND IN DESERT AREA BIKANER

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Abstract:

Sand dune, dry hot air, low rainfall and scanty fresh water reservoir are characteristic features in desert area like Bikaner. It is situated in western part of the Rajasthan with peculiar desert fauna and flora. Sagar village pond is situated 7 km east of the Bikaner city, surounded by eastern and southern side and collects water from north-west sides. In rainy season it receives planty of rain water which get store in 2000 sq m area; the water also carry several nutrients that flourishes the fauna and flora of aquatic ecosystem. After rainy season, day by day the water column of sagar village pond slowly lower down and in winter or before onset of next summer it becomes dry. But each and every year flora and fauna get develops, like molluscs (*Lymnaea, Indoplanorbis, Digoniostoma, Thiara, Gabbia*), zooplankton, phytoplankton, nekton, neuston, benthos etc. Several human activities like lifting of water by bullock cart, bricks formation, bathing, durga puja evey thing disturb the aquatic flora and faunal diversity and density. Every year after drynes and than after rainy season the aquatic ecosystem of sagar village pond again get restored and fully flourishes.

Keywords: Desert, aquatic ecosystem, fauna, flora

SEASONAL VARIATION, DIVERSITY INDICES AND CORRELATION OF PHYTOPLANKTONS FROM NAKANA LAKE, DISTRICT- DHULE (MS) INDIA

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Abstract:

Present study discovered the incident of 38 phytoplanktonic species during two years. Amid these 17 species of Chlorophyceae, 9 species of Bacillariophyceae, 9 species of Cyanophyceae and 3 species of Euglenophyceae were observed. The total density of phytoplanktons were recorded as (8152/l) and (7656/l) with significantly significant seasonal variation in year 2014-15 and 2015-16 respectively. Total density was decreased in next year as compare to first. Maximum density of phytoplankton found in summer season, moderate in winter and in monsoon it was least in condition. *Spirogyra spp, Fragillaria capulina, Lungbya and Euglena pisciformis,* were showed dominant position from each phytoplanktonic group. Total 6 diversity indices were estimated among them Shannon-Weiner Index (363.5157) and (344.3082), Simpson's Dominant Index were (0.0775) and (0.0429). Physico-chemical parameters like pH, Turb, TDS, EC and O_2 were positively correlated however Temp, Free CO2, TH, Ca^{++} and Mg^{++} were negatively correlated with phytoplanktons.

Keywords: Chlorophyceae, *Euglena pisciformis*, Simpson's Dominance Index

COMPARATIVE STUDY OF MILK COMPOSITION AND NUTRITIVE VALUE OF GOAT AND COW

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Abstract:

Milk is an excellent source of vitamins and minerals. It provides Potassium, B12, Calcium and vitamin D. It is also a good source of vitamin A, Magnesium, Zinc and Thiamin. Many infants and children are feed nutritional milk. Studies suggested that the goat milk resembles human milk, is homogenous, less allergic. Goat milk has an excellent medicinal property, it is better digested and absorbed than the cow milk. The aim of the present study is to find out the nutritional and medicinal property goat and cow milk. Physiochemical analysis is the important tool to monitor the quality of milk and other dairy products. Food energy, Total solid, Total Protein, Fat Content, Conductivity, pH, Ash content, Specific gravity, Lactose, Minerals all these Physicochemical properties are studied in this paper. The nutritive value of goat milk and cow milk was not significantly different but the size of fat globule was smaller in goat milk, therefore it is easy to digest and more nutritive.

Keywords: Cow milk, pH, physiochemical analysis, B12, Goat milk

STUDY OF CESTODE PARASITIEM INDEX IN FRESH WATER FISH *MASTACEMBELLUS ARMATUS* FROM MIDC LAKE AUDHAN, DHULE (M.S.)

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Abstract:

The present study was carried out to study the population study of cestode parsites from M.I.D.C.Lake.of Dhule evaluation was based on the study of fresh water fish *Mastacembellus armatus* from July 2016 to March. 2017. The Fish host examined for the cestode infection in the present study depended largely on their availability in MIDC Lake of Dhule District Dhule. The host examined from these localities include fresh water fishes. fishes were procured with the help of fisher man from MIDC Lake at Aavdhan village. Parasites collected from the exposed digestive tract and other parts of the fish the worms which could be seen with the naked eyes were picked up with the help of a forceps. Worms were stored in fresh 4% formalin formalin. The fixed worms were stored in fresh fluid of 70% alcohol, 5% formalin and 5% glycerine. Photography is made by Canon 3600 Camera.

Keywords: *Mastacembellus armatus* Cestodes, parasites, M.I.D.C.Lake, Avdhan,

RENAL-PROTECTIVE ROLE OF LEAF EXTRACT OF *PITHECOLLOBIUM DULCE* AGAINST CHLORAMPHENICOL INDUCED RENAL -TOXICITY IN *MUS MUSCULUS*

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Abstract:

Due to the climatic changes or changing the life style of the human being the various microbes have been evolved that cause the different infectious diseases. So that the uses of antibiotics have been increased in order to get relief from the microbial infection. The microbes infect the living things by various vectors, vehicles, etc. However indiscriminate uses of antibiotics as well as chemotherapeutic drugs lead to health issues like nephrontoxicity like glomerulonephritis, inflammation of renal tubules, etc. *Pithecellobium dulce Benth* is an important medicinal plant. This study focused on the evaluation of protective effect of *Pithecellobium dulce Benth* against chloramphenicol induce renal changes like kidney damage in the form of dialated tubules with regressed blood vessels and vacuolated glomeruli.

On the basis of above mentioned literature one has to study the leaf extract of *Pithecellobium dulce* (L.E. of PD). It was evaluated for its protective role against chloramphenicol induced renal-toxicity in mice. The activities of renal function parameters like blood urea nitrogen (BUN) was increased and creatinine decreased in toxin group. Whereas these levels were recovered in prophylactic groups. The level of glutathione (GSH) and catalase (CAT) were elevated whereas superoxide dismutase (SOD) and lipid peroxidation (LPO) levels were declined in toxin group. While these values were recovered in the prophylactic group. It is concluded that the antioxidants in the LE of PD like Dienestrol, Quercetin, Fisetin (flavonoid) etc are useful to share the electron with free radicals in order to stop the role of free radicals to damage the kidney.

Keywords: *Pithecellobium dulce,* chloramphenicol, renal-protection, leaf extract

ASSESSMENT OF THIAMETHOXAM INDUCED TOXIC EFFECT ON GLYCOGEN CONTENT OF THE FRESHWATER BIVALVE, *LAMELLIDENS MARGINALIS* (LAMARCK)

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Abstract:

Pesticides due their environmental persistence cause pollution of aquatic bodies. They also have the tendency to bioaccumulate into the aquatic organisms and lead to cause an adverse effect on them by changing their physiological as well as biochemical processes. The present investigation was carried out to study the alterations in the glycogen content in different body parts i.e. gills, gonads, digestive glands, foot, mantle and whole body of the freshwater bivalve, *Lamellidens marginalis* after chronic exposure to the Thiamethoxam. The obtained results clearly revealed an alteration in average glycogen content of exposed bivalves after chronic exposure as compared to the bivalves maintained as control. The highest depletion in glycogen content recorded in the digestive glands as compared to the gills, gonads, foot, mantle and whole body in bivalves exposed to the pesticide. The substantial decline in the glycogen contents in the digestive glands might be due to greater glycolytic activity to meet the enhanced energy demands in pesticide treated animals. Maximum depletion in digestive glands indicates its role as the principal metabolic organ for different metabolic activities. Thus, alterations in glycogen content can be use as biomarker of Thiamethoxam stress in the freshwater bivalve *L. marginalis.*

Keywords: Thiamethoxam, *Lamellidens marginalis*, chronic, digestive glands

INFLUENCE OF TOTAL HARDNESS ON THE LETHAL TOXICITY OF AMMONIA TO FRESHWATER FISH *LEPIDOCEPHALICHTHYS GUNTEA*

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Abstract:

Ammonia is the nitrogenous waste released by aquatic animals like fishes which is found naturally in water. Increase in ammonia concentrations in aquatic habitat is due to several sources like industrial wastes, coal, gasification, liquefaction conversion process and agriculture discharges, which enter natural water system and affect the fishes and other aquatic organisms, The physicochemical factors such as total hardness affect the toxicity of chemicals to fishes. So the static renewal bioassays were done to study the influence of total hardness as $CaCO_3$ mg/l on the lethal toxicity of ammonia to the freshwater fish *Lepidocephalichthys guntea.* The studies shows that as the total hardness of water increased the toxicity of un-ionised NH_3 to *Lepidoceephalichthys guntea* increased, And as total hardness increased the toxicity of NH_3-N increased their toxicity to the said fish. The 24,48,72 and 96 hours LC_{50} values were found to be 1.011, 0.999, 0.974 and 0.962 mg/l at 30 mg/l total hardness as $CaCO_3$ and at 100 mg/l as total hardness $CaCO_3$ the 24, 48,72 and 96 hours LC_{50} values were 0.789, 0.764, 0.746 and 0.715 mg/l respectively for the said fish exposed to Un-ionised ammonia respectively and for NH_3-N the 24.48. 72 and 96 hours LC_{50} values for 24, 48, 72 and 96 hours were 65.6,,64.8, 63.2,and 62.4 at 30 mg/l total hardness $CaCO_3$ and 24, 48,72 and 96 hours LC_{50} values were 51.2, 49.6, 48.4 and 46.4 mg/l respectively for the said fish, This indicates that as the total hardness increases the toxicity of un-ionised ammonia increases and as the total hardness increases the toxicity of NH_3-N increases.

Keywords: *Lepidocephalichthys guntea,* Un-ionised Ammonia, NH_3-N, Toxicity, Total Hardness as mg/l $CaCO_3$

A CASE STUDY: SOIL TESTING OF COTTON FARMS IN TALUKA BODWAD, DIST. JALGAON

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Abstract:

Soil testing is important tool to determine the quality of soil and the fertilizers to be added. The cotton is the 2nd largest cash crop grown in the Maharashtra. Small scale farmer mostly prefers the cotton crop for their income. In the present investigation five different farms were selected as study area and the soil was collected to know the physico - chemical contents and structure of the soil. The present study concluded that the PH of the soil is neutral to slightly alkaline electric conductivity was normal, the organic carbon is low to high available micronutrients moderately low-to-high. the selected farms were somewhat balanced nutrients no need to add extra macronutrient like nitrogen and phosphorus, potassium if it is added it will imbalance the soil. With the help of Soil testing, the farmers can know the need of the fertilizer to be added in the farm thereby they can save money and maintain ecological balance. Soil testing camps must be organized on every two to three year in the particular village where farmers can test their soil samples easily and could save money by avoiding adding excess fertilizers.

Keywords: macronutrient, fertilizer etc.

ACUTE EFFECT OF METASYSTOX PESTICIDE ON BEHAVIORAL RESPONSE OF FRESH WATER CRAB *BARYTELPHUSA CUNICULARIS*

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Abstract:

Present investigation observes the behavioral changes of crabs exposure to metasystox pesticide and identification of stress conditions. The Lc_{50} values of fresh water crab *Barytelphusa cunicularis* exposed to metasystox pesticides were calculated. The Lc_{50} values of metasystox pesticides for 24, 48, 72 and 96 hours were found to be 1.5ppm, 1.25, 0.75 and 0.50 ppm respectively. Metasystox pesticide affect directly on central as well as peripheral nervous system of crab *Barytelphusa cunicularis*. Interfere behavioral response indicates stress condition of crab.

Keywords: *Barytelphusa cunicularis,* behavioral response, toxicity

IMPACT OF ANTICANCER DRUG, ACTINOMYCIN ON THE NUCLEOLAR CHANGES IN THE DEVELOPING OOCYTES OF FRESH WATER BIVALVE, *LAMELLIDENS MARGINALIS* (L).

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Abstract:

Actinomycin drug has anticancer properties for chemotherapy against solid tumors.This drug exhibits effective chemoprevention in cancer therapy and most active cytotoxic agents in the treatment of cancer .The nucleus of the cell serves to maintain, regulate, and replicate the critical genetic information encoded by the genome. In present toxicity studies, sub-lethal dose of Actinomycin (LC50/10 for 96 hours) was given to an experimental model, the fresh water bivalve *Lamellidens Marginalis* for 45 days. The nucleoloar changes of developing oocytes from female gonads ovary were observed from control and treated bivalves by using Methyl green and Pyronin-Y stains. It was found that the chronic exposure of anticancer drug, Actinomycin (2.052 ppm) induced alterations in the structure of nucleolus and hence the nucleolus of developing oocytes showed condensation of the chromatin, aggregation of the nucleic acid such as DNA and RNA at certain locations, Overall result high dose of Actinomycin in the *Lamellidens Marginalis* production of multiple or overgrowth and induction of increased number of nucleoli. Extra nucleoli were more prominent in actinomycin treated bivalves after 45 days of exposure.

Keywords: Actinomycin, Anticancer drug, Developing Oocytes, Nucleolus, Bivalves.

IDENTIFICATION OF LACTIC ACID BACTERIA WITH ANTICANCER PROPERTIES

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Abstract:

Lactic acid bacteria (LAB) have been emphasized to provide a beneficial function to the human gastrointestinal (GI) ecosystem as a probiotic. They include an ecologically different group of microbes united by the formation of lactic acid as the main metabolite of sugar fermentation. Probiotics are live microbial food supplements that can be considered functional food. In recent years researchers are focusing on probiotic bacterial usage in cancer prevention because of its positive impact. Scientific evidence shows a strong relationship between diet, lifestyle, and changes in gut microbiota composition which may instigate the onset of colorectal cancer (CRC). Considering the risk factors of CRC, dietary therapy has become one of the most effective approaches in reducing its morbidity and mortality. LAB have been used successfully in controlling diarrhea, food allergies, and inflammatory bowel disease. They also exhibited multiple mechanisms such as alteration of the intestinal microflora metabolic activities; changes in the physicochemical conditions of the colon; binding and degrading potential carcinogens; quantitative and/or qualitative alterations in the intestinal microflora involved in synthesizing putative carcinogen(s) and promoters; production of antitumorigenic or antimutagenic compounds; enhancing the host's immune response; and effects on the physiology of the host. These unique properties of the LAB help to prevent colorectal cancer initiation and development. Thus, the demand for novel LAB as anti-cancer agents is increasing to develop a novel biological control approach. This makes them promising bacteria for further research and clinical treatments.

Keywords: Cancer, gut health, lactic acid bacteria, probiotics.

A ROLE OF FRESH WATER AND MARINE COMMUNITIES FOR AQUATIC BALANCE IN ECOSYSTEM

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Abstract:

All the living entities of an ecosystem from a single biotic component, the community. All the fresh water and marine communities of an organisms live together, in an ecosystem, share some habitat and influence each other's, its life patterns depend on one another. A role of these communities it is essential for the aquatic balance in an ecosystem, for the purpose of shelter, nutrition and food chain, since the plants, animals and microorganisms all interact with each other and cannot be separated. It also plays an important role in environment for living organism. Hence it is essential to save fresh water and marine communities for aquatic balance in ecosystem.

NEMATODES OF ORDER RABITIDA OF GENUS *PAR ACROBELES LATERELLUS*(HEYNS,1968) AND *ACROBELES ANDALUCICUS (*VON LINSTOW,1877) FROM DIST. AURANGABAD (M.S.) INDIA

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Abstract:

The genus *Paracrobeles* and *Acrobeles* of plant nematodes has been described from different region of Aurangabad. The *Paracrobeles* species is characterized by small, cylindrical, curved body, cuticle annulated, annuli with longitudinal striation. Body length 0.59 mm. Lateral field, with three incisures. Lip region weakly offset, consisting of six lips arranged in three pairs, Six outer labial and four cephalic papilliform, sensilla arranged in a cephaloboid manner. Metastegmostoma**,** isthmus narrow, bulb oval. Nerve ring and excretory pore vary in position .Reproductive system monodelphic, prodelphic, spermatheca present. Vagina straight and perpendicular to body. Vulva with a depression. Tail conoid, slightly curved to ventral side. *Acrobeles undalusicus*(Von linstow,1877) also described with description, measurement with illustractions.

Keywords: *Paracrobeles*, *Acrobeles,* Plant nematode, Aurangabad, India.

PATHOLOGICAL MANIFESTATIONS OF THE ACANTHOCEPHALAN PARASITE, *RAORHYNCHUS POLYNEMI* IN THE MARINE THREADFIN FISH, *POLYDACTYLUS SEXFILIS* (VALENCIENNES, 1831), A CANDIDATE SPECIES FOR AQUACULTURE FROM EASTERN COAST, BAY OF BENGAL

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Abstract:

The study describes the pathological manifestations of the acanthocephalan, *Raorhynchus polynemi* in the marine threadfin fish, *Polydactylus sexfilis*, a commercially valued food fish along the east coast of India. The fish collected during July 2005 to June 2007 from Visakhapatnam coast, Bay of Bengal harboured the acanthocephalan parasite, *Raorhynchus polynemi* with upto 69.56% prevalence. Heavy infestations with the parasites were observed in the anterior two-thirds of the intestine, almost clogging the intestinal lumen. The morphological and diagnostic characteristics of *Raorhynchus polynemi* Tripathi, 1959 was studied by means of light microscopy while their pathological effects on the host intestinal tissues were assessed through Transmission electron microscopy. The parasites penetrated through the intestinal layers with their proboscis and neck, while their trunks hanged in the intestinal lumen absorbing the nutrients from the host intestine. At the point of parasite attachment, some of the layers were indistinct or absent, villar epithelium and parts of the enclosed lamina propria were ruptured at contact point with the worm's proboscis hooks. In heavy infections, at the site of perforation, all the layers of the intestine are completely disrupted as the parasite caused a lot of damage. The electron microscopy observations revealed the accumulation of heterophilic granulocytes, few lymphocytes, macrophages and mucus droplets near the presomal worm surface and the increase in number of goblet cells, polymorphic nucleocytes, wandering leucocytes, lymphocytes and granulocytes around the damaged area. In the present study, intense host responses were observed in areas of contact between the parasite and the host. In spite of substantial damage caused to the architecture of the intestinal tissues, there were no noticeable ailing effects on the general health status of the fish and they survived. The parasite was also recovered from

the other polynemid fishes, *Polydactylus sextarius*, *Polydactylus polynemi* and *Eleutheronema tetradactylum*.

Keywords: Histopathology, *Polydactylus sexfilis*, *Raorhynchus polynemi*, Acanthocephala, pathology, Visakhapatnam coast

STUDIES ON PHYTOPLANKTON OF KRISHNA PARK NANDURBAR (M.S.) INDIA

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Abstract:

The present study deals with the survey of phytoplankton communities from Krishna Park reservoir of Maharashtra state, India. The Krishna Park reservoir is a small project constructed on local Nallah near the village Wavad, Nandurbar District. The construction of earthen embankment was completed in the year 1975.Now-a-days it has been used as Recreation Park. Seasonal variation of phytoplankton density was studied of Krishna Park. This revealed that the total density of phytoplankton was Maximum in summer, while minimum density was recorded in monsoon. The total phytoplankton administered significant seasonal variation. At Krishna Park total 55 species of phytoplanktons were recorded with 26 species belonging to Bacillariophyceae, 15 to Chlorophyceae, 10 to Cyanophyceae and 04 to Euglenophyta. The species richness sequence of various groups of phytoplankton was seen in decreasing order as Bacillariophyceae > Chlorophyceae> Cyanophyceae> Euglenophyta in the present study (48.8 %> 22.97 % > 20.3 % > 7.91 % respectively). Phytoplankton diversity is an important criterion for evaluating the suitability of water for drinking and irrigation purposes. The phytoplankton community structure depends on a variety of environmental factors that include various physico-chemical factors. The Pearson Correlation calculated by keeping phytoplankton as dependent variable and other abiotic factors as independent variables indicated the influence of various physicochemical parameters on their density as well diversity.

Keywords: Krishna Park, phytoplankton, Pearson Correlation, Seasonal variation.

STUDY OF ZOOPLANKTON FROM UNDOCUMENTED WETLAND, NORTH MAHARASTRA

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Abstract:

The use of zooplankton for ecological biomonitoring of water bodies also helps in the analysis of water quality trends and judgment of adequacy of water quality for various uses. The present study gives status of Zooplankton community of Wadi-Shewadi dam is build on Burai River is one of the southern tributary of river Tapi at the middle reach of Burai basin. Zooplankton communities of freshwater belong to four main taxonomic groups, the Rotifera, the Cladocera, Copepoda and Ostracoda were consider for monitoring. The study site was visited at an interval of thirty days for two year. Surface water samples were collected from three stations of Wadi-Shewadi dam. Standard method was used for quantitative and qualitative analysis of zooplankton. In the **Wadi-Shewadi Dam** total 49 species of Zooplankton were recorded which belong to four groups : Rotifera (28 species), Cladocera (12 species) and Copepoda (6 species), ostracoda (3 species). The statistical analysis Mean, SEM, One way ANOVA and Pearson Correlation is carried out. Maximum density of the total zooplankton were recorded in summer and minimum in winter, while it was moderate in monsoon. The species composition of total zooplankton occurred in decreasing order of dominance with average two years species richness as Rotifera >Cladocera>Copepoda>Ostracoda and administered significant seasonal variations. It supports good density and diversity of zooplankton that can maintain the balanced ecosystem. Some pollution tolerant species were recorded from Wadi-Shewadi dam but with low population. Looking at the increasing tourist load in future good management practices are required to maintain the balanced ecosystem of Wadi-Shewadi dam.

Keywords: Wet-land, Wadi-Shewadi dam, Zooplankton, Diversity, Habitat heterogeneity, Pearson Correlation

MORPHOMETRIC STUDY OF FRUIT PIERCING MOTH, *OTHREIS (EUDOCIMA) MATERNA* (L.) (LEPIDOPTERA: NOCTUIDAE) FROM MARATHWADA (M.S.), INDIA

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Abstract:

The present communication deals with the studies on morphology of different life stages of fruit piercing moth. The fruit piercing moths *O.materna* belonging to family Noctuidae of order Lepidoptera. During the present study the moths were collected with the help of hand net and light traps in at evening between 7:00 pm to 10:00 pm during August 2019 to December 2019 from pomegranate orchids of Marathwada region. The study reveals that orchids in Marathwada as heavily infected with fruit piercing moth *O.materna.* The biology of the moth was studied in the laboratory and the egg, larvae, pupae, and adults were studied for morphological treasure, like shape, size and colour. The larvae measure by with help of vernier scale and observed under microscope and eggs measurements were carried out with help of ocular micrometer. The study is helpful for the investigation and identification of this harmful pest.

Keywords: *Othreis materna*, morphology, Biology, Lepidoptera, Noctuidae.

BIOACCUMULATION OF HEAVY METALS IN EDIBLE FISHES IN GOMTI RIVER LUCKNOW

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Abstract:

Heavy metals are the pollutant found in environment abundantly. Heavy metals are ubiquitous and persistent in nature. Cadmium, Chromium, Copper, Lead, Arsenic, Mercury and Manganese are some common heavy metals. Heavy metals are expelled in environment due to medicinal, industrial waste, sewage, coal mine activity and other anthropogenic activity. These metals drain into water body with untreated waste. Lucknow city is located at the bank of river Gomti. Here river Gomti receives large amount of heavy metals pollutants with untreated industrial, medicinal waste, sewage and other anthropogenic activity. These heavy metals pollute the aquatic flora and fauna of river Gomti. Fishes are affected by appearance of these heavy metals. These heavy metals are accumulate on the skin of fishes. Heavy metals reach to the fish through route of food chain. These metals are bioaccumulate in gill, liver, gonad, muscles and kidney of fish. The three edible fishes species like *Catla catla, Heteropneustes fossilis and Channa punctatus* were caught from three sites of River Gomti: Pakka Pull, Hanuman setu and Gomti Barrage. The fish organs like liver, gill, kidney, gonads and muscles of three edible fish were carefully dissected for determination of heavy metals like Copper, Cadmium, Lead, Chromium, Arsenic and Mercury. The level of heavy metals were determine by using Inductively Coupled Plasma Spectroscopy (ICPMS). Result obtained the order of occurrence of heavy metals in tested samples Cu>Pb>Cr>Cd>As>Hg. Bioaccumulation of Copper was observed very high in gill. Concentration of heavy metal was found to be the least in the fish muscles. The concentration of heavy metals were higher in tissues of fishes than the recommended value of WHO. Fishes are bio marker of the aquatic ecosystem. These findings confirmed that water of river Gomti was contaminated with heavy metals. It is important to prevent the inflow of domestic and industrial sewage in the river Gomti.

Keywords: Heavy metals, Bioaccumulation, Gomti River

STUDIES ON DIVERSITY OF ADULT MOSQUITO SPECIES IN AURANGABAD CITY, MAHARASHTRA, INDIA

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Abstract:

Mosquitoes are tiny insects of order Diptera. All over world India ranks 5th for mosquito diversity. Mosquitoes act as a vector for malaria, Chikungunya, dengue, fever. The study of mosquito diversity is the essential to find out new control strategies. The present study deals with the diversity of mosquito larvae and adults mosquito in Aurangabad city of Maharashtra, India. The mosquito larvae were collected from 10 sampling sites and rearing was carried out in the laboratory as well as adult mosquito were collected with the help of mouth aspirator. Total five species of genus *Aedes, Anapheline, Culex* such as species *Aedes aegypti, Aedes albopictus*, *Aedes vittatus,Culex quenquifasciatus, Anopheles Culicifacies* were identified as per the key and description given by Christoper (1933), Nagpal and Tingare (2010), Sathe and Girhe (2002). The study reveals that in month September and October there is high abundance of *Aedes agypti* and *Aedes albopictus*. As they are key vector of dengue diseases during this period dengue patients number is increased in Aurangabad city.

Keywords: Larval, diversity, epidemics,*Anopheles, Aedes aegypti*, *Aedes albopictus etc.*

NOTES ON *CLARIAS BATRACHUS* (LINNAEUS, 1758) FROM AMRAVATI REGION OF MAHARASHTRA (INDIA)

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Abstract:

The *Clarias batrachus* (Linnaeus, 1758) is one of the common fresh water air breathing catfish of the region. It is locally known as "Magur" that cultivated due to its high marked demand as it is delicious and rich in nutrients. The catfish has an elongated body shape and reaches almost 0.5 m in length and 1.2 kg in weight. It is often covered laterally in small white spots; the body is mainly coloured a gray or grayish brown. This catfish has long-based dorsal and anal fins, as well as several pairs of sensory barbels. The skin is scaleless, but covered with mucus, which protects the fish when it is out of water. This species is omnivorous; it feeds on smaller fish, molluscs, and other invertebrates, as well as detritus and aquatic weeds. It is a voracious eater that consumes food supplies rapidly, so it is considered harmful when invasive.

Keywords: Amravati, catfish, *Clarias batrachus,* Magur, Maharashtra

BIOCHEMICAL STUDIES ON CESTODE PARASITES IN *GALLUS GALLUS DOMESTICUS* FROM NASHIK DISTRICT, M.S (INDIA)

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Abstract:

The present investigation deals with the biochemical estimation of cestode parasite and its host tissue i.e. normal and infected intestinal tissue of *Gallus gallus domesticus* in Nashik district. The result obtained an amount glycogen and protein percentage is low in parasite but amount of lipid percentage is high in parasite as compared to their hosts.

Keywords: Biochemistry, *Gallus gallus domesticus, cotugnia*, lipid, Nashik District.

CORRELATION BETWEEN ROTIFER AND WATER PARAMETERS FROM GANGAMAI GHAT OF PRAVARA RIVER, SANGAMNER, DIST.AHMEDNAGAR, (M.S.), INDIA

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Abstract:

Zooplanktons are microscopic free swimming minute floating animal forms found in aquatic ecosystem. Zooplanktons mainly grouped as Rotifera, Copepoda, Cladocera and Ostracoda. Rotifera is most abundant group out of them. The present study focused on the rotifer diversity and density in relation with physico-chemical parameters from Gangamai Ghat, Pravara river of Sangamner tehsil. The zooplankton and water samples were collected for a period of eight month on monthly basis. Water parameters (Temperature, pH, Total Alkalinity, Chloride, Total hardness, Calcium, Magnesium and Dissolved Oxygen and Biological Oxygen Demand) were estimated using standard methods. Identification of rotifer was done by using standard manuals. Results obtained that total five species (*Branchionus calyciflorous*, *Branchionus quadridentatus*, *Branchionus urceolaris*, *Lecane papuna* and *Asplanchna brightwelli*) of rotifers were recorded. Statistical analysis was done by using 'Karl Pearson's Correlation Coeficient' amongst the rotifer density and water parameters. Water parameters affect the diversity and density of rotifers. It is concluded that Pravara river at Gangamai Ghat is going to be polluted in coming days hence need of sustainable management at study site.

Keyword: Density, Diversity, Rotifer, Water parameters.

RE-DESCRIPTION OF A CESTODE PARASITE OF GENUS *RAILLIENTINA* FROM *GALLUS GALLUS DOMESTICUS* FROM CHALISGAON

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Abstract:

The scolex is medium, globular, distinctly marked off from the strobili, with 4 suckers, arranged in two pairs, one pair in each half region of the scolex, overlapping to each other, it shows armed rostellum, rostellar hooks are numerous, arranged in single circle; on each sucker margin characteristics spines are present, 5 to 6 in a transverse grove; neck is short with convex lateral margin; mature segment medium, rectangular, posterior corners projecting outside; tests are 40 in number, large in size, oval in shape; ovary multilobed, in the centre of the segment; genital pores medium, oval and marginal and unilateral; vitelline glands post ovarian and near the posterior margin of segments. The uterus breaks up into many utrine capsules, contains 6 to 8 eggs in different capsule. The eggs are medium, oval in shape

Keywords: *Raillitina*, *Gallus gallus domesticus*, re-description, *R.(R.) leptosoma* Diesing,1850

EFFECT OF LEAF EXTRACT OF NERIUM OLEANDER AGAINST DEVELOPING STAGES OF HELIOTHIS ARMIGERA

Chetankumar Sharma

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Abstract:

Present investigation evaluates the adverse effect of leaf extract of Nerium oleander in 2 different solvents i.e. acetone and ethanol. For the study larvae of Heliothis armigera were exposed to different concentration of acetone and ethanol extracts of Nerium oleander in artificial medium. At higher doses emergence of adults are reduced and mortality was increases and also abnormal adults were seen. Due to the effect of leaf extract of Nerium oleander prolonged of larval and pupal period were observed.

Keywords: Nerium oleander, Heliothis armigera, acetone, ethanol.

DEPLETING ATMOSPHERIC OZONE LAYER AND ITS ENVIRONMENTAL HAZARDS

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Abstract:

The stratosphere contains the ozone layer, which contains relatively high concentrations of ozone. Ozone is mainly located in the lower portion of the stratosphere from approximately 15 to 35 km above the Earth's surface. Stratospheric ozone depletion due to air pollution has long been recognized as a threat to human health as well as to the earth's ecosystems. Ozone is a tri-atomic form of oxygen (O_3) found in the Earth's atmosphere. The ozone layer is being destroyed by CFCs and other substances. Ozone depletion progressing globally except in the tropical zone. According to IPCC report, global surface temperatures are likely to increase by 1.1 to 6.4°C between 1990 and 2100. This reflects the large heat capacity of the oceans. It greatly increases the global warming of our beautiful planet Earth. Consequences of less ozone are; reduction in photosynthesis, reduces plankton and penguin population, reduces the percentage of hatching of frog eggs, increase in air pollution- forming photochemical smog, degrades building materials, skin cancer, eye damage such as cataracts, immune system damage, damage to the DNA in various life-forms and possibly other things too, that we don't know about at the moment. Ozone is Earth's only defense against harmful solar UV radiations. Efforts needs to be implemented in order to protect the ozone layer, viz. creation of reliable models to gain a better understanding of the effects of ozone depletion on living organisms within different ecosystems, enforcement of Montreal protocol, reduce the concentrations of chemicals responsible for ozone depletion, monitoring chemicals being emitted, gain a better overall understanding on just how ozone depletion is affecting our planet Earth.

Keywords: CFC, Ecosystem, Global warming, IPCC, Ozone, Stratosphere, UV radiations, etc.

IMPACT OF CU &ZN ON HISTOPATHOLOGY IN FRESH WATER FISH*CHANNA PUNCTATUS* FROM BHAGHAR LAKE, DISTRICT: BARABANKI (U.P) INDIA

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Abstract:

The current study was aimed to evaluate the effect of Zn & Cu in the liver, kidney and muscle of *Channa punctatus*. fish samples (average wet body weight 460.77 ± 6.22 g) were collected from the freshwater reservoir Bhaghar lake. The heavy metals were assessed through atomic absorption. Model mixture were prepared in aquarium and fish were treated with that.The findings of this study revealed bioaccumulation of metals. The heavy metals concentration was crossing the permissible limits suggested by WHO. Histopathological examination in kidney exhibited congestion, dilation in bowman capsule space, necrosis. Liver of the fish exhibited cytoplasmic vacuolation, necrosis, sinusoid dilation. It has been concluded that this lake is heavily contaminated due to the discharge of agro-chemicals and untreated domestic sewage from the nearby villages, towns and there is a dire need to control this increasing contamination.

Keywords: Bhaghar lake, *Channa punctatus*, necrosis, histopathological examination, heavy metals,

OBSERVATION OF *EIMERIA PARVA* IN GOAT AND SHEEP FROM KALLAM TEHSIL, (M.S.) INDIA

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Abstract:

Protozoan parasites of the genus *Eimeria* (Coccidia: Eimeriidae) are extremely undefeated organisms that inhabit and multiplies within the intestinal tract. These parasites cause infestation. In sheep and goats, coccidiosis is caused by the genus Eimeria. Among this genus, there are over 10 species of *Eimeria t*hat are known to infect sheep and goats. Not all of the species are infective or have identical level of pathogenicity. In fact, only few are typically resposible for malady outbreaks. Throughout the current study *Eimerian* species are collected from goats and sheep from Kallam Tahsil. Present author is describing here only species i.e. *E. parva.*

Keywords: *Eimeria,* oocyst, Sporocyst, Sporozoite.

IDENTIFICATION, VERIFICATION AND CONFIRMATION OF UNKNOWN MEAT PIECES USING MITOCHONDRIAL CYTOCHROME C OXYDASE I (CO-I) MARKER IN DNA BARCODING TECHNOLOGY: REVIEW

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Abstract:

Non vegetarian food has expanded market in the world, especially, in those areas where vegetarian foods are available in less quantity. Meat and meat products (cow beef) are obtained by slaughtering animals including cattle. However, the origin of animal species in food links with religious ethics, which are violated by sellers for commercial gain including a mismatch in labelling and ingredients and presence of trace amount of restricted animal meat in daily used meat foods. Hence, the authentication of meat-based foods comes in a role that protects ethics and animal protection. In this review, we have investigated the authentication status of meat (cow beef) based food products using globally used COI gene dependent DNA barcoding technology.

Keywords: Meat and meat products, DNA barcoding technology, COI gene, commercial gain, beef, authentication.

TAXONOMICAL SURVEY ON SPHINGIDAE FAMILY MOTHS FROM NANDURBAR DISTRICT, MAHARASHTRA (INDIA)

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Abstract:

Nandurbar is an administrative district in the northwest corner (Khandesh Region) of Maharashtra state in India and is bounded to the south and south-east by Dhule district, to the west and north is the state of Gujarat to the north and north-east is the state of Madhya Pradesh. The taxonomic study resulted in the collection and identification of **15** species of **11** genus, Sphingidae family moths. They were collected and studied from Nandurbar district of Maharashtra from June 2019 to November 2019. Regarding their seasonal abundance, the activity of moths was found maximum during monsoon season. The present study has been carried out and it is a small step towards a complete taxonomic understanding of moth species from the Nandurbar District.

Keyword: Sphingidae, taxonomic, species,family,moths

TAXONOMIC STUDIES OF MAMMALIAN TAPEWORM *MONIEZIA (B.) CHALISGAOENSIS* N.SP. FROM *CAPRA HIRCUS* (L.)

Abjijeet Chavan and Ajit kalse

Helminth research laboratory, Nanasaheb Y. N. Chavan, Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon, (M.S.) India

Abstract:

The present paper deals with description of the new species of genus *Moniezia*, Blanchard, 1891 subgenus Blanchariezia, Skrjabin and Schulz, 1937, viz. *Moniezia (B.) chalisgaonensis* n. sp. The present tapeworm differs from all other species of genus *Moniezia (B.)* in having scolex large, squarish in shape, with four suckers; neck medium; mature segment broader than long , with the double sets of reproductive organs; testes 90 to 100 in number; cirrus pouch oval in shape, cirrus thin; vasa deferens thin, convoluted; ovary large, inverted cup shaped; vagina thin tube, posterior to the cirrus pouch; ootype small, oval; genital pores bilateral, medium, oval; longitudinal excretory canals wide; interproglottid glands 30-34 (32) in number; vitelline gland large and globular in shape.

Keywords: *Capra hircus* ; new species ; *Moniezia (B.) chalisgaonensis*; Chalisgaon

RE-DESCRIPTION OF A CESTODE PARASITE OF GENUS *RAILLIENTINA* FROM *GALLUS GALLUS DOMESTICUS*

Shubham Deshmukh and Ajit kalse

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Abstract:

The scolex is medium, globular, distinctly marked off from the strobila with 4 suckers arranged in two pairs, one pair in each half region of the scolex, it shows armed rostellum, rostellar hooks 100 to 110 in number, arranged in single circle, thin and curved; on each sucker margin characteristics spines are present, 5 to 6 in a transverse grove; neck is short with convex lateral margin; mature segment large, rectangular, posterior corners projecting outside; tests are 40 in number, large in size, oval in shape; ovary bilobed, butterfly shape near posterior margin of segment, with acina ; genital pores medium, oval and marginal; vitelline glands large triangular, post ovarian and near the posterior margin of segments. The uterus breaks up into many utrine capsules, contains 6 to 8 eggs in different capsule.

Keywords: *Raillitina*, *Gallus gallus domesticus*, re-description, *R.(R.) leptosoma* Diesing,1850

RE-DESCRIPTION OF A CESTODE PARASITE OF GENUS *RAILLIETINA* FROM *GALLUS GALLUS DOMESTICUS*

Ravindra More and Ajit kalse

Helminth research laboratory, Nanasaheb Y. N. Chavan, Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon, (M.S.) India

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Abstract:

The scolex is small, oval distinctly marked off from the strobili, with 4 suckers, arranged in two pairs, one pair in each half region of the scolex, it shows armed rostellum, rostellar hooks 63 to 68 in number, arranged in single circle; on each sucker margins characteristics spines are present; neck is short with convex lateral margins; mature segment large, rectangular, posterior corners projecting outside; testes are 30 in number, large in size, oval in shape; ovary bilobed, near posterior margin of segment with acini; genital pores medium, oval, marginal; vitelline glands large triangular, post ovarian and near the posterior margin of segments; gravid segment are longer than broad; the uterus breaks up into many uterine capsules, contains 8 to 10 eggs in different capsule.

Keywords: *Gallus gallus domesticus*, re-description, *R.(R.) echinobothrida* Megnin, 1881

EFFECT OF INTEGRATED DOSES OF NITROGEN FERTILIZER AND BIOFERTILIZER ON YIELD POTENTIAL OF FODDER CROP SORGHUM (CV. RUCHIRA)

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Abstract:

Use of inorganic fertilizer has become essential part of the crop production and a balance form of fertilizer use is always a prerequisite to obtain the higher yield. However, these fertilizers are costly and also pollute the environment through the process of denitrification and volatilization and soil water through leaching wherein only 50 percent of available nitrogen is being used and rest 50 percent goes as waste and is an environmental hazzard. Hence, a strategy for integrated nutrient supply is evolved by using judicious combination of chemical fertilizer, organic manure and biofertilizers (Panwar, et al 2001). Therefore a combine effect of chemical fertilizer along with biofertilizer on percentage increase in yield of fodder crop sorghum (cv.Ruchira) and saving of nitrogenous fertilizer due to the use of biofertilizer was studied under present investigation .

Keywords: Nitrogen fertilizer, Biofertilizer, Yield potential , Sorghum , Integrated dose.

IDENTIFICATION, VERIFICATION AND CONFIRMATION OF UNKNOWN MEAT PIECES USING MITOCHONDRIAL CYTOCHROME C OXYDASE I (CO-I) MARKER IN DNA BARCODING TECHNOLOGY: REVIEW

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Dept. of Zoology, Rani Laxmibai College, Parola, Dist-Jalgaon, Maharashtra, India.

*Dept of Microbiology, Jaywantrao Sawant College, of Commerce and Science, Pune, Maharashtra, India.

Corresponding Author: rajeshdhakane001@gmail.com

Abstract:

Non vegetarian food has expanded market in the world, especially, in those areas where vegetarian foods are available in less quantity. Meat and meat products (cow beef) are obtained by slaughtering animals including cattle. However, the origin of animal species in food links with religious ethics, which are violated by sellers for commercial gain including a mismatch in labelling and ingredients and presence of trace amount of restricted animal meat in daily used meat foods. Hence, the authentication of meat-based foods comes in a role that protects ethics and animal protection. In this review, we have investigated the authentication status of meat (cow beef) based food products using globally used COI gene dependent DNA barcoding technology.

Keywords: Meat and meat products, DNA barcoding technology, COI gene, commercial gain, beef, authentication.

RE-DESCRIPTION OF A CESTODE PARASITE OF GENUS *RAILLIETINA* FROM *GALLUS GALLUS DOMESTICUS*

Rohini Patil and Ajit kalse

Helminth research laboratory, PG Department of Zoology, Nanasaheb Y. N. Chavan, Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon, (M.S.) India

Abstract:

The scolex is small, globular distinctly marked off from the strobili, with 4 suckers, arranged vertically, margins are armed with minute spines which are in 4-5 transverse row, it shows armed rostellum, rostellar hooks are numerous and, arranged in single circle; neck is long; mature segment large, rectangular, posterior corners projecting outside; testes are 16 to 20 in number, large in size, oval in shape; ovary bilobed, near posterior margin of segment with 5 to 7 acini; genital pores small, oval, marginal; the longitudinal excretory canals are wide in width; gravid segment are broder than long; the uterus breaks up into many uterine capsules, contains 5 to 7 eggs in different capsule.

Keywords: *Gallus gallus domesticus*, re-description, *R.(R.) nagpurensis,* Moghe, 1925

SEASONAL VARIATION IN CESTODE PARASITES FROM FRESHWATER FISH, *MASTACEMBELUS ARMATUS* (LACEPEDE, 1800)

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2 Department of Zoology, N.Y.N. Chavan ASC College, Chalisgaon, Dist. Jalgaon, India.

Abstract:

Mastacembelus armatus fish is a commercially important fish and it is a popular table fish due to delicious taste and high nutritional value. In India, its demand is even higher than that of the carps. Parasitic infection constitutes significant economic loss in fish production. The aim of this work was to study the seasonal variation of cestodes in *Mastacembelus armatus*. In the present survey of cestode parasites viz. *Senga* sp., *Circumonchobothrium* sp. collected from the intestine of a *Mastacembelus armatus* at different collection sites of Beed district (M.S.) India, January 2019 to December, 2020. The incidence of infection of both the species of cestode parasites was found high in summer season, followed by winter season, whereas infection was low in monsoon season. These variations may be attributed to various environmental and biological factors including parasite life cycle and immune level of host.

Keywords: Prevalence, *Mastacembeleus armatus*, Cestodes parasites, Beed district.

NEOROSECRETORY CELLS OF A SPOTTED WATER BEETLE IN JALGAON DISTRICT M.S., (INDIA)

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[1] Pratap College, Amalner, Tal- Amalner, Dist- Jalgaon, Maharashtra,

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[4]Department of Biology, Faculty of Sciences, University of Bisha, Saudi Arabia.

[5]Department of Biology, Faculty of Applied Sciences, Thamar University, Yemen.

Abstract:

The cerebral neurosecretory cells in the central nervous system and retrocerebral endocrine complex (corpora cardiaca and corpora allata) were studied in spotted water beetle. In whole mount of brain there are two group of cells situated anterior side of the pars intercerebralis each group having 12 ‘A’ cells. ‘A’ cell of brain is dark purple in colour with Aldehyde Fuchsin stain, which are rounded or pear shaped. Whole mount of suboesophageal ganglia shows the presence of 2 ‘A’ type neurosecretory cells situated anteroventrally in the suboesophageal ganglia. The neurosecretory cells in the brain are classified according to the variation in their morphology and stainability ‘A’ type of cells stain dark purple with Paraldehyde Fuchsin. They contain large number of granules which filled up most of the perikaryon. These cells are pear or sometime irregular in shape. B’ type of cells is intensively stained green with Halmi’s mixture. The secretion is evenly distributed in the cytoplasm. Usually, these cells are almost less in number and smaller in size. There are ‘A’ and ‘B’ type of cells in males. Female insects do not show any differences in number of neurosecretory cells.

Keywords: Neurosecretion, Paraldehyde Fuchsin, Halmi’s mixture, Spotted Water Beetle

INTEGRATED CROP AND PEST MANAGEMENT TO ENHANCE PRODUCTIVITY OF VEGETABLES AND INCOME OF FARMERS THROUGH ORGANIC FARMING

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Abstract

Vegetable growing is a production system involving a wide range of components. Vegetable farming requires a large number of management practices including IPM, ICM, INM and effective water management etc. The present-day natural resources management is a perfect example of how marginal agriculture is affecting the eco-systems. The present study concludes that we tend to combine 4 number of systems which wholly integrated with precisely perfection form a single unit. Conventionally a practise of monocropping was involved in vegetable cultivation, we have revolution ally changed our monocropping system into mixed cropping system to face unbearable natural calamities. Our mix cropping involves nearby 20 type of various crops. Approach of integrated pest was that we have to think the mix cropping as wholly as single unit. Our soul responsibility was to cut down prevention cost for controlling pest. The excessive dependence of chemical pesticides available in the market led to the development of resistance in pests to pesticides & occurrence of residues in food chain. Overcome such conditions and reduces impact to human- animal and soil health. Concept of IPM with better profits, so we have inculcated wide range of eco-friendly strategies for the same. For sustainable crop production the amount of nutrition needed for the same is necessarily should be uniform through out the crop system. We have substituted organic fertilizers (cow dung, cow urine, mpkv's biofertilizers jivammrut, vermicompost etc) instead of chemical fertilizers. Effective water management is plays vital role in crop production, so we have used drip irrigation system for providing sufficient water for crops. This is aimed to discuss the importance of various insect pest and diseases, ICM, INM, IPM and cropping pattern for marginal farmers economical benefits and eco-friendly management strategies.

Keywords: IPM, INM, ICM, Bio-pesticides, organic and vegetables.

RE-DESCRIPTION OF A CESTODE PARASITE OF GENUS *RAILLIETINA* FROM *GALLUS GALLUS DOMESTICUS*

Sayali Patil and Ajit kalse

Helminth research laboratory, Nanasaheb Y. N. Chavan,
Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon, (M.S.) India

Abstract:

The scolex is small, oval distinctly marked off from the strobili, with 4 suckers, arranged in two pairs, one pair in each half region of the scolex, it shows armed rostellum, rostellar hooks 63 to 68 in number, arranged in single circle; on each sucker margins characteristics spines are present; neck is short with convex lateral margins; mature segment large, rectangular, posterior corners projecting outside; testes are 30 in number, large in size, oval in shape; ovary bilobed, near posterior margin of segment with acini; genital pores medium, oval, marginal; vitelline glands large triangular, post ovarian and near the posterior margin of segments; gravid segment are longer than broad; the uterus breaks up into many uterine capsules, contains 8 to 10 eggs in different capsule.

Keywords: *Gallus gallus domesticus*, re-description, *R.(R.) echinobothrida* Megnin, 1881

COMPUTATIONAL ANALYSIS AND FUNCTIONAL ANNOTATIONS OF OPSIN 2 FROM DESERT LOCUSTS, *SCHISTOCERCA GREGARIA*

Abeni John D'Sa[1] and Somnath Waghmare[2]

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[2] Department of Zoology, Nowrosjee Wadia College, Pune.

Abstract:

Desert locusts being a major threat to the crops in many parts of the country, and due to the frequency of their attacks have increased in the recent times, hence, the biological control of it, is important. The detection of light in the Desert locusts, *Schistocerca gregaria*, is achieved by a specialized dorsal rim area (DRA) in their compound eye which helps them to navigate. The plane of dorsally presented polarized light is sensed by specific special areas that help adapt to the pattern of polarization of the blue sky for spatial orientation. The protein Opsin 2 helps in these visual activities and also the directional functionality of the locust. Targeting the protein Opsin 2 to inhibit its expression will help control the destruction caused to plants' ecosystem, specifically to the crops. In the present studies, Primary sequence of opsin 2 protein from the databases like NCBI and UniProt. PredictProtein server used to check protein's structural and functional features, physicochemical properties of opsin 2 protein by using the ProtParam tool. For the Secondary structure prediction used GOR method, Seq2logo tool and SOSUI online server. In Silico analysis shows instability index, aliphatic index, secondary structure opsin 2 protein results shows that protein is soluble according to the results.

Keywords: opsin 2, Primary sequence analysis, NCBI,

IN SILICO SEQUENCE ANALYSIS AND FUNCTIONAL ANNOTATIONS OF GLYCOGEN PHOSPHORYLASE PROTEIN FROM AEDES AEGYPTI MOSQUITO

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Abstract:

Glycogen phosphorylase (GP) protein which is present in the Aedes aegypti mosquitoes. Aedes aegypti is the primary transmitter for many viruses like Dengue, yellow fever and chikungunya. *A. aegypti* is distributed in many countries of south East Asia and especially it is common species in Maharashtra state. Glycogen phosphorylase plays an important role in carbohydrate metabolism. Also, GP helps the mosquito in growth and provides energy too. Glycogen phosphorylase protein is essential for *A. aegypti* mosquito. The 3D structure and functions of Glycogen phosphorylase protein from Aedes aegypti are not known. In the present studies, Primary sequence of GP protein from the databases like NCBI and UniProt. PredictProtein server used to check protein's structural and functional features, physicochemical properties of GP protein by using the ProtParam tool. For the Secondary structure prediction used GOR method, Seq2logo tool and SOSUI online server. In Silico analysis shows instability index, aliphatic index, secondary structure of glycogen phosphorylase protein. The GP protein is Soluble according to the results.

Keywords: Glycogen Phosphorylase, Aedes aegypti, Primary sequence analysis, NCBI.

SEASONAL ANALYSIS OF CERTAIN BIOCHEMICAL PARAMETERS OF CARPS CULTURED IN DOMESTIC SEWAGE OXIDATION PONDS

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Abstract:

Aquaculture from domestic sewage water is an alternate solution for growing scarcity of food to the pressures of population by producing fish and prawn using treated domestic waste effluents. It is an economically viable process particularly in the developing countries including India. Keeping in view of the above viability, we have cultured three species of fishes *Cyprinus carpio, Labeo rohita and Cirrhinus mrigala* in domestic sewage oxidation ponds designed as per NEERI (National Environmental Engineering Research Institute, India). Biochemical parameters such as serum lactate and serum cholesterol have been investigated in the present study to determine the quality of fishes cultured in sewage oxidation ponds for human consumption. Among all experimental fishes, *C.carpio* exhibited higher serum lactate as compared to *L.rohita* and *C.mrigala*. Similarly, high serum cholesterol values were observed in *C.carpio* as compared to other two species in all the three seasons. During the monsoon season, maximum serum cholesterol were observed in sewage cultured *C.carpio* and minimum in summer season followed by *L.rohita* and *C. mrigala*. The fishes cultured in fresh water control ponds showed comparatively low values of serum lactate and cholesterol than the experimental fishes. Our results support the concept that good survival and adjustment of the fishes to the pre-treated nutritive domestic sewage water leads to their significant growth with an increased biochemical profile especially with higher levels of cholesterol, which are season dependent.

Keywords: Aquaculture, sewage oxidation ponds, serum lactate, serum cholesterol, biochemical profile

DIVERSITY OF PLANKTON WITH REFERENCE TO FISH FAUNA OF KELGAON WATER RESERVOIR IN SILLOD TEHSIL, DIST: AURANGABAD (M.S.) INDIA

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Abstract:

Kelgaon water reservoir is minor reservoir located in Sillod tehsil from Aurangabad district of Marathwada region in Maharashtra state.This water reservoir provides water for irrigation and drinking purposes to the nearby agricultural fields and villages. It is good source of fisheries with having economic status. The present work deals with the study of plankton diversity (i.e. Phytoplankton & Zooplankton) with reference to fish fauna. In present study water samples were collected from two different sampling stations during the annual cycle from the months of June 2019 to May 2020. The samples were collected in first week of each month in the morning hours. Plankton diversity with reference to fisheries were studied monthly during the annual cycle. To study the plankton diversity, water samples were collected and preserved by standard methods. Obtained species of planktons in water samples are identified and classified with the help of standard key. The present research work revealed that the plankton diversity gradually increased from rainy season to summer season.

In monsoon season (June-Sept 2019) plankton diversity was found minimum. Whereas it was maximum in summer season (Feb-March 2020) and in winter season (Oct-Jan 2020) it varied moderately. The planktons diversity is correlated with the diversity of fish fauna found in that water reservoir.

Keywords: Plankton diversity, Fish fauna, water reservoir.

INSECTICIDAL ACTIVITY OF *IPOMOEA CARNEA* AGAINST RED COTTON BUG, *DYSDERCUS CINGULATUS* FAB.

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Abstract:

Insecticidal effect of methanol and ethyl acetate leaves extract of *Ipomoea carnea* were studied against *Dysdercus cingulatus*. The plant leaves were dried, powdered and extracted in soxhlet apparatus in methanol and ethyl acetate solvent for 24 hrs. The adult red cotton bug, *D. cingulatus* were exposed to various concentration (2.5 to 19 µg/mL.) and percent mortality were recorded after 96hrs.

The insecticidal activity of leaves extract of *Ipomoea carnea* were LD_{10}= 4.871µg/mL. LD_{50}=8.500µg/mL, LD_{90}=13.09µg/mL., LD_{99}=13.71µg/mL in methanol and LD_{10}=2.597µg/mL, LD_{50}= 6.096µg/mL., LD_{90}= 13.05µg/mL., LD_{99} = 13.98µg/mL. in ethyl acetate. Results revealed that the mortality increase with increase in concentration of the plant extract. The ethyl acetate solvent extract showed more insecticidal property against *Dysdercus cingulatus*. Stastical variance, 95% confidence limits and regression equations are presented.

Keywords: *Dysdercus cingulatus, Ipomoea carnea*, mortality.

INFLUENCE OF PHYTOECDYSTEROID ISOLATED FROM *CHENOPODIUM ALBUM* ON ECONOMIC PARAMETERS OF SILKWORM, *BOMBYX MORI* L.

S. B. Barge[1], G.J. Nagare, D. Vetal and A.B. Pardeshi[2]

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Abstract:

The phytoecdysteroid isolated from the plant, *Chenopodium album* and were tested against 4th and 5th instar larvae of silkworm for improving the performance of growth and cocoon characteristics of silkworm, *Bombyx mori* L. The various concentrations of *Chenopodium album* plant extract (5, 10, 15, 20, 25 mg/ml.) were administered to 4th and 5th instar silkworm with mulberry. The larval weight, cocoon characteristics were influenced by various concentration of plant extract. The intensity of influence was depends on the time and dose exposure. The plant extract at 25mg/ml. concentration resulted higher larval growth and increased cocoon weight. The mean larval weights, relative growth rate of silkworm, *Bombyx mori* were increased. The average pupa weight, shell weight, shell ratio and silk filament length were also increased with this supplementation of plant extract over the control. In the present study the plant extract of *Chenopodium album* have growth promoting effect in silkworm which helps to improve the performance of silk in *Bombyx mori.*

Keywords: Plant extract, *Bombyx mori*, parameters.

STUDIES ON ROTIFER DIVERSITY OF PENTAKLI DAM OF BULDHANA DISTRICT, MAHARASHTRA INDIA

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Abstract:

The rotifers are commonly called wheel animals that make up a phylum of microscopic and near-microscopic pseudocoelomate animals. Being zooplankton, they constitute the basic food sources of any aquatic ecosystem, which supports fish and other aquatic animals. Their diversity is one of the most important ecological parameters in water quality assessment. The rotifers are good indicators of the changes in water quality because they are strongly affected by environmental conditions and respond quickly to changes in water quality. They are the intermediate link between phytoplankton and fish. Hence qualitative and quantitative studies of rotifers are of great importance. In the present paper qualitative and quantitative studies of rotifers in **Pentakli Dam** of Buldhana district were carried out during early winter of 2020. Using microscopic taxonomical studies of zooplankton, this investigation revealed that 05 genera of Rotifer namely *Brachionus sp., Cephalodella sp., Trichocerca sp., Keratella sp.* and *Euchlanis sp.*

Keywords: Buldhana, Diversity, Maharashtra, Pentakli Dam, Rotifer, Zooplankton

ICHTHYO-FAUNAL DIVERSITY OF KOSHI BARRAGE, KOSHI RIVER, SUNSARI DISTRICT, NEPAL

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Abstract:

Koshi River is the biggest river in Nepal consisting of seven different tributaries so called the Sapta Koshi which flows in eastern Nepal. The river is very rich in fish diversity. Koshi Barrage was built between 1958 and 1962 across Nepal's largest river, the Sapta Koshi. The Koshi Barrage is a flood control sluice across the Koshi River of Nepal near the International border India. There are altogether 56 gates in the Barrage. The study was conducted for six months from October, 2017 to April, 2018. Two sampling stations were taken i.e. Gate No. 1 and 2 of Koshi Barrage, Koshi River. The study was carried out to understand the baseline information and to know the diversity of the Koshi Barrage as well to know about the fishing gears used by fishers during fishing. A total of 15 species of fishes were recorded from the Barrage (Gate No. 1 and 2) belonging to five orders, eight families and 14 genera. The most common species distributed in the Koshi Barrage were *Osteobrama cotia cotia, Parluciosoma daniconius, Mystus cavasius, Eutropiichthys goongware, Barilius barila, Botia lohachata, Clupisoma garua and Puntius sophore*. The fishing gears used in the Koshi Barrage were found to be Gill net, Cast net and Double Stick Lift net. It was found that the local community, fisher folks and government are not taking enough care for the conservation of these species. So, the necessity of conservation and management principles are to be encouraged.

Keywords: Koshi Barrage, Gate number one and two, Fishing gears, Nepal

SUBMERGER BIOFILERS FOR RECIRCULATING AQUACULTURE

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Abstract:

Submerged biofilters are used in recirculating aquaculture systems for treatment of wastewater generated from fish ponds due to presence of uneaten food material, fish faecal matter, growth of algae and other microorganisms. These types of biofilters presume that enough amount of dissolved oxygen is present in wastewater to be treated for providing it to biofilm. Submerged biofilters can be packed, expanded or expandable. Packed bed submerged biofilters includes submerged rock, plastic packed bed and shell filter. Expanded bed submerged biofilters includes fluidized sand filter, moving bed bioreactor and downflow microbead. Expandable submerged biofilters can be floating bead bioclarifier, upflow sand filter and foam filters. This paper reviews submerged biofilters for treatment of wastewater in recirculating aquaculture systems.

Keywords: Aquaculture, submerged biofilter, dissolved nutrients, fish production, pond, wastewater treatment

HONEY BEES: NATURAL POLLINATOR AND BOON FOR POMEGRANATE CROP IN DEOLA REGION OF NASHIK DISTRICT, (M.S), INDIA

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Abstract:

Bees are small and hardworking insects which makes honey. The main objectives of this study were effect of honey bees (*Apis mellifera L.*) on the fruit setting, yield and quality of fruits of pomegranate in Deola region. Bees are the important component of an agro ecosystem in India as a pollinator and conservation of biodiversity. In several cross pollinated crops including pomegranate, honey bees are cheapest and effective method of enhancing crop yield in both quantity and quality ecofriendly. The total value of pollination services provided by all insects globally comes excess of 100 billion US dollar annually (2003 Valuation). In India 50 million hectares of land are under bee dependent. An estimated loss in India due to complete absence of bee pollination has been measured between Rs. 10,000 to 55,000 per hectares in some crops. (Mohapatra L. N., Sontakke B.K. and Ranasing N, 2010, working in the O. U. A. T., Bhubaneshwar).

In the present study the role of honey bees in the production of pomegranate has been considered. Most of the farmers in this region are cultivating pomegranate crop as per availability of irrigation. This crop is harvest twice in a year. Honey bees suck juice from the flowers and carried out pollination in this crop. Pollination rate increased and setting of fruit enhances ecofriendly, hence yield increased significantly. Pollination rate enhances by the honey bees eco-friendly and increasing yield up to 30-40%. Similar result have been obtained by Morse and Calderone (2000), pollen substitute (Chhuneja, 1990). Due to use of pesticide and deforestation population of honey bee decreases (Sandilyan, 2014; Potts et al, 2010). Honey bees are very useful insects for cross pollination crops like sunflower, pomegranate, onion, wheat, bajra etc. Use of honey bee is an eco-friendly and cheaper method of increase the crop yield.

Keywords: Honey bee, Fruit setting, Yield, Pomegranate etc.

ANTIOXIDANTS: A GIFT FROM PLANTS TO REDUCE FREE RADICAL

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Abstract:

Antioxidants are the substances which can prevent the damage to our cells, which is caused by free radicals. During the process of oxidation, our body produces some unstable chemicals which are called as free radicals. Oxidation process in our body takes place by stress, alcohol intake, smoking, pollution, U.V. light etc. Due to this our immunity decreases and degeneration of body starts. Our life style is the main reason to increase the rate of production of free radicals. Oxidative stress is most important reason for disease causing. Antioxidants are the compounds in our body, which neutralise free radicals and protect us from different diseases.

Fresh fruits and fresh vegetables are very good source of antioxidant, vitamin C, vitamin E & beta carotene, lycopene, selenium, manganese. Some antioxidants are not obtained from our food, but they are prepared in the body. Food with rich and dark colour contains high antioxidants. Antioxidant generally found in plant food material especially fresh fruits and vegetables, which neutralises the effect of free radicals and prevent us from variety of diseases. When there is age related degeneration in the body, then there is very essential to use supplements of antioxidants. People have to eat variety of fresh fruits and vegetables, milk, eggs, fish and whole grains. Our diet should include five servings of a medium sized fruit or half cup of cooked vegetables.

Keywords: Antioxidants, free radicals, Oxidative stress, immunity, degeneration..

SCORPION FISHES AS A CANDIDATE SPECIES FOR AN AQUARIUM

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Abstract:

The Scorpion fishes go by the scientific name Scorpaenidae and belong to the kingdom Animalia and Phylum Chordata. They come from the class and order Actinopterygii and Scorpaeniformes respectively. Scorpaeniformes consists of 35 families, around 250 genera and above 1600 valid species. They are found throughout the world's oceans and have rather short, bulky bodies with highly venomous spines on their dorsal, pelvic, and anal fins. These fishes do not have any commercial value, but they are caught along with main food fish as by-catch in trawl nets. There are more than 200 recognized species of scorpion fishes in artificial aquariums around the world. Owing to their vibrant colour shades and complex markings and behavior, they are kept in aquariums. They are extremely hardy as well as disease resistant and adapt very well to life in the aquariums. The scorpion fishes which are regularly available to the hobbyist are part of the subfamilies Scorpaeninae and Pteroinae, the latter of which includes the well-known lionfishes. In this paper, an attempt has been made to review an availability of scorpion fishes at Ratnagiri coast of Konkan, Maharashtra.

Keywords: Scorpion fishes, Poisonous fishes, Aquarium, Ornamental fish.

ORNAMENTAL FISHERY DEVELOPMENT IN THE MAHARASHTRA

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Abstract:

The ornamental fish trade in recent years has turned out to be a commercial business in the country with a steady increase globally. The majority of aquarium fish traded are fresh water species, but the proportion of marine species traded is also increasing each year in the international market. India's share to global ornamental fish trade is less than one percent but still it is projected as a "sleeping giant" because potential resources is not exploited. The international ornamental fish trade of India is estimated to be the order of Rs. 25 crores and the export trade is to be 6.0 crores which is only 0.3% of the global trade. The government has stepped in to play its part. Recently, the central government along with state government had launched a set of new subsidy schemes for development of ornamental fish sector in India under the PMMSY. The interventions taken by the Marine Biological Research Station (Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth), Ratnagiri for the development of ornamental fishery industry and doubling the farmer's income in the Maharashtra state are reviewed in this paper.

Keywords: Ornamental fish farming, Konkan, India, Doubling Farmers Income.

IN SILICO SEQUENCE ANALYSIS FUNCTION ANNOTATION OF PEROXIREDOXIN FROM *MELOIDOGYNE INCOGNITA*

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Abstract:

Meloidogyne incognita mostly found in India commonly known as root knot nematode (RKN). India produces 16.9 million/year tons of vegetable which exported by country is 5462.93 crore. Agricultural production of India mostly damages due to the parasitism and prediction of different pathogen and pest. among them root knot nematode creating major problem in Agricultural production which is directly effect on Indian economy. Meloidogyne incognita mostly feed on Solanum Tuberosum. root knot nematode (RKN Incognita) is parasite which are able to infect 2000 plant species. development and infection of Meloidogyne Incognita which completely depending on specific gene which is called PRX gene, Meloidogyne incognita is endogenous derived reactive oxygen species (ROS). When pathogen infect plant, plant activate H2O2 mediates stress responses and the activates host defences which kills pathogens, but ROS scavenging enzymes protect the parasite from oxidative response of the host tissue, Peroxiredoxins (PRXs) are Thiol-specific anti-oxidant protein that reduce H2O2 and alkyl hydroperoxide. Pathogenic nematode has to fight with oxidative defense response of the plant so they have developed special defense mechanism to fight against plant defense response. Peroxiredoxin is responsible for this defense response against plant. Peroxiredoxin which responsible for infection of plant. To analyse function of protein primary structure, secondary structure and tertiary structure is important. Bioinformatics developed Tools and Resources that help in analyze or invent new 3D structure of targeted protein. In current study we predicted the primary structure of Peroxiredoxin protein *Meloidogyne incognita* using uniport. Physicochemical properties of peroxiredoxin protein which we have obtained from expasy server(prot param) according to expasy server 197 number of amino acids present in peroxiredoxin protein. Then we predict secondary structure of peroxiredoxin by using predict protein. Predict locations of alpha-helix and betastrand from amino acid sequence was determined by GOR tool. Seq2Logo: a method was used for construction and visualization of amino acid binding motifs and sequence profiles including sequence weighting, pseudo counts and two-sided representation of amino acid enrichment and depletion.

Keywords: *Meloidogyne incognita*, Peroxiredoxin, root knot nematode (RKN)

DIETARY INTAKE PATTERNS & NUTRITIONAL STATUS OF WOMEN OF REPRODUCTIVE AGE IN BHIWANDI

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Abstract:

Nutrients deficiency in women of reproductive age in town of Bhiwandi has resulted in ill-effects on health. The main reason behind the survey was to know the nutritional status & dietary intake pattern among the women, as a woman plays an important role in family planning & her health is priority in every house. The Survey was carried out through google form questionnaire to record their age, height, weight, profession, education, nutritional knowledge, meals per day, consumption of fast food, dietary intake, health issues, daily water intake, consumption of alcohol or tobacco, functioning of menstrual cycle, pre menstrual tension, exercise & meditation, nutrients deficiency, complications during pregnancy, age of menopause, problem faced during menopause, health related to menopause. Random sampling of 250 women was done. Findings show that 60% were student still their knowledge about nutrition was moderate, 33% were housewife of that 23.5% were having poor nutritional knowledge. Among the dietary intake pattern 42% women consumed fast food & 12% women consumed on daily basis. About 60% women do not include milk in their daily meals & only 9% women drink fruit juice on daily basis. 21.6% women take Vitamins as a dietary supplements & 9.8% women take protein as a dietary supplement. The women who were having 4 meals per day were obese & they were not considering doing exercise and meditation. 35.3% women were having vitamins as nutrients deficiency. Women who were underweight faced complications during pregnancy. 36.4% women faced problems associated with menopause. The conclusion came out that the dietary intake pattern is not according to healthy food habits. Women's nutritional status show that there must be changes in their diet to avoid any ill-effects on health.

Keywords: Dietary knowledge, women's, nutritional status, reproductive age, Bhiwandi.

EFFECT OF NPK FERTILIZER ON BIOCHEMICAL COMPOSITION OF FRESH WATER FISH *GAMBUSIA AFFINIS*

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Abstract:

Pollutants like heavy metals, pesticides, antifouling agents, fertilizers etc. have adverse effect on growth and survival of aquatic animals. Fertilizer disturbs biochemical and physiological pattern of animals. In present investigation biochemical composition (protein, carbohydrate and lipid) of *Gambusia affinis* was estimated, as *Gambusia affinis* is act as biological agent for mosquito control in aquatic ecosystem. Estimation of carbohydrate, protein and lipid was done by De Zwaan and Zandee (1972), Lowry *et al*., (1951) and Lehtonen (1996) method respectively. Results obtained that carbohydrate, protein and lipid content were decreased in experimental *Gambusia affinis* as compared to control. Study concluded that NPK fertilizer affects carbohydrate, protein and lipid composition of *Gambusia affinis.* Hence it is necessary to control on use of NPK fertilizer the agricultural field.

Keywords: Carbohydrate, *Gambusia affinis*, Protein, Lipid, Fertilizer

FRESHWATER AQUARIUM KEEPING A FANTASTIC HOBBY DURING COVID-19 LOCKDOWN

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Abstract:

When the lockdown was imposed, many people suddenly found ample time on their hands and began to explore new hobbies. Fish-keeping is a fantastic hobby enjoyed all over the world. It is simply amazing how one individual can sit in front of the aquarium spending hours staring and admiring colorful fishes and their habitat. It is mind boggling how people can kill time with this interesting hobby. This hobby is a boon to the people who lead a stressful life and have cardiovascular disorders/problem. By pursuing this hobby one can experience calmness and happiness effectively reducing stress levels and hence keeping the blood pressure in check.

Ornamental fishes are the most popular pets of the world and aquarium keeping is the second largest hobby, next to photography. Tropical fishes have always attracted ornamental fish hobbyists. India, being a tropical country, has tremendous potential of ornamental fishes in the Western Ghats and North Eastern Hills. Most research into the health benefits of human-animal interaction has focused on species that interact physically with humans, such as dogs. This may be unsuitable for certain populations for reasons including accessibility and the risk of negative consequences to both the person and the animal. However, some research has associated viewing fish in aquariums with positive well-being outcomes; as there is no physical contact with the animal, this form of interaction carries less risk.

Aquariums are well known as small houses of fishes. The aquarium is an enclosed clear-sided container made of high strength plastic or constructed glass for keeping or raising animals and plants for research and observation. Having an aquarium can be much more than just a place to put the fish and provide a natural ecosystem conditions in artificial manner. Major component of the aquarium is tropical fish. Ornamental fishes are attractive colourful fishes of various characteristics, which are kept as pets in confined space of an aquarium or a garden pool for fun and fancy. Ornamental fish is one of the important items among the various types of commercially important fishes marketed nationally and internationally and are popularly known as "Aquarium Fishes" as they are usually kept in

glass aquarium. Ornamental fishes are characterized by a wide diversity of colours and colour patterns. Some of the important popular aquarium fishes are like *Gambusia, Botia, Colisa, Nemachelius,* gold fishes, angel fishes, etc. In the present paper various aspects related to aquarium keeping were discussed.

Keywords: Aquarium keeping, ornamental fishes, hobby, human health, lockdown

FARM PONDS AS A KEY FOR WATER, FISH AND LIVELIHOODS UPLIFTMENTS OF FARMERS IN MAHARASHTRA

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Abstract:

A farm pond is the water harvesting structure in farm land to store water for crop and designed to store rain water harvesting by farmers which is used for irrigation and fish farming purposes. It helps to increase farm production and income of farmers. Farm ponds are not only a source of supplemented the income but it is also a lifeline for irrigation to crops during dry summer months. Raising fish is an obvious use for a farm pond; it adds value to the water and provides improved nutrition for farm families. Farm pond has the potential to increase availability of water for supplemental irrigation, increase in cropped area and productivity leading to increase in net returns from crops. This technology offers a solution to overcome the increased frequencies of drought, particularly mid-season and terminal drought under climate change scenario. Construction of farm ponds depends on soil type, rainfall amount and water requirements. In this paper review of utilization of farm ponds and their role in increasing livelihood of small farmers has been made.

Keywords: Farm ponds, fish farming, alternative farm income, irrigation.

DEVELOPMENT OF NOODLES READY-TO-FRY PRODUCT FROM LOW COST FISH

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Abstract:

Fish is a highly nutritious food and is one of the most valuable sources of high grade protein available to man. Needless to say that, approximately 30% of the total fish landings can be considered as under-utilized or by-catch. Many of the species are difficult to process by conventional techniques and if processed they face poor marketability. Therefore, in order to prevent post-harvest fishery losses the development of value added products from underutilized fishes is the present need for their utilization for human consumption. The enormous potential of extrusion cooking to produce extruded fish products from sea foods has yet to be exploited. The name snack food covers a wide range of food products. They are consumed as light meals or a partial replacement for regular meal. Often they will be eaten while traveling or watching sports and other entertainments. The general range of snack foods will include products such as nuts, biscuits and merge into confectionery and meat products. However, the main sector, which is defined clearly as snack foods, contains the major snack products such as popcorn, potato chips or crisps and baked or fried snacks and starch-based snacks. The development of low cost, high energy and nutrient rich food is a constant challenge in developing countries. Keeping in view, the present study on development of ready-to-fry fish noodles from low cost fish, its nutritional quality and storage characteristics of the product was studies and discussed.

Keywords: Value Added Products, Fish, Low cost fish, ready-to-fry fish noodles

SYNTHESIS AND CHARACTERIZATION OF SILVER NANOPARTICLES PRODUCED FROM *PSEUDOMONAS SP.*

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Abstract:

Synthesis of silver nanoparticles utilizing microorganisms has gotten significant interest as a result of their ability to synthesize nanoparticles of different size, shape and morphology. The present study emphasizes on the synthesis of silver nanoparticles using *Pseudomonas sp.* isolated from industrial effluents. Isolate was able to form silver nanoparticles when treated with 1 mM $AgNO_3$, at room temperature within 24 h. This was confirmed by the visual observation and UV–Vis absorption studies. Maximum absorption was observed at 425nm. Further characterization of nanoparticles by transmission electron microscopy confirmed the size of silver nanoparticles in 5-50 nm range. Hence, the current study is a demonstration of an efficient synthesis of stable silver nanoparticle by a *Pseudomonas sp*.

Keywords: $AgNO_3$, Nanoparticles, Biosynthesis, *Pseudomonas sp.*

VERMICOMPOST: THE ORGANIC FERTILIZER

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Abstract:

Organic waste is a natural refuse that comes from plants or animals – food waste, green waste, paper waste, manure, human waste, sewage and slaughterhouse waste. This organic waste can be turned into a compost and produce valuable nutrients. Vermicomposting is one such method that uses earthworms to feed on the organic waste material and give out excreta in the form of "vermicasts" that are rich in nitrates and minerals such as phosphorus, magnesium, calcium and potassium. This product is a vermicompost that can be used as fertilizer to grow crops, reducing dependency on chemical fertilizers. It improves the fertility of the soil in an eco-friendly and cost-effective way.

Keywords: Organic waste, Vermicomposting, Vermicompost, Organic fertilizer, Soil fertility

A SHORT REVIEW OF ORGANOGELS AND THEIR BIOLOGICAL AND ENVIRONMENTAL APPLICATIONS

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Abstract:

The world is facing the problem of food scarcity due to increasing population. The modern life style has extended the problem up to appearance of the food. Gelation is found as solution to many problems. Gels are associated in many biological processes. Gels are cross-linked polymer networks of polymers swollen with a liquid. The gels having desired properties can be fabricated by incorporating suitable moiety in the gelator molecule. The LMOGs are found to have wide applications in the field of pharmaceuticals, optoelectronic and nano-electronic devices, templates for growing nanomaterials, environmental cleaning agents, and also cytotoxic agents etc. because of special structural feature.

Keywords: Gelator, crosslink, polymerization, encapsulation, LMOG.

WASTE MANAGEMENT DURING COVID-19 PANDEMIC

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Abstract:

COVID-19 pandemics pose a threat to many facets of human society, including energy and waste management. Because of the COVID-19 pandemic, many supply chains are being disrupted. There is an impediment to business operations, portability and assembling areas due to the spread of COVID-19 pandemics that fundamentally affects waste administration. Waste management is a serious concern for human growth and health outcomes during the COVID-19 pandemics. In the lockdown period, the quantity of waste has increased across countries in the panic of purchasing goods for everyday use but the lockdown period decreases energy usage in the transport sector. Usage of personal protective equipment such as masks, gloves, sanitizers, etc. by common people as well as medical industry employees, banks, daily need stores, waste disposal industries, etc., contributes to another route in the generation of waste. So in this pandemic era, there is a grave need for waste management so that we can reduce the spread of COVID-19 infection. Reducing the human interaction will minimise the transmission chain of viruses across the world. This article focuses on discussion of the impact of COVID-19 on waste generation, recycling and disposal.

NEEDS OF CONSERVATION OF WETLAND

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Abstract:

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually aquatic at or near the surface, or the land is covered by shallow waters. Wetlands are amongst the most productive ecosystems on the Earth and provide many important services to human society. They are also ecologically sensitive and adaptive systems and perform some useful functions in maintaining ecological balance of the nature. Wetlands are probably the earth's most important fresh water resources which provide food and habitat for many aquatic lives including threatened and endangered species. These are cradles of biological diversity, providing the water and primary productivity upon which countless species of plants and animals depend for survival. They have been an essential part of human civilization meeting many crucial needs for life such as drinking water, food, fodder, energy supply, flood storage, transport, recreation, biodiversity, and climate stabilization. The loss of wetlands has led to several ecological disasters in some areas, including large-scale devastation due to inundation. The major causes of loss of biodiversity in wetland systems include land use patterns, habitat destruction, pollution, exploitation of resources, and invasive species. Wetlands are under increasing stress due to the rapidly growing population, technological development, urbanization and economic growth. About 50 % of the world's wetlands have been lost in the last century, primarily through drainage for agriculture, urban development and water system regulations. On a global scale, the loss of wetlands can be mainly attributed to natural and anthropogenic activities such as climate change through increased atmospheric temperature, shifting patterns in precipitation, increased frequency of storms, droughts, and floods, and sea level rise etc. So, conservation of wetlands is very much essential as wetlands are one of the most threatened habitats of the world. The most important step for conservation of wetlands is to maintain a proper water quality. The water quality is directly related to the health of the water body. So, proper management in water quality of aquatic environment is very much essential.

ASSESSMENT OF PHYSICAL PARAMETERS OF SULWADE DAM, DIST- DHULE, MAHARASHTRA

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Abstract:

The present study is deals with the assessment of before and after treatment water quality in terms of physical parameters. The study was carried out for two years from Jan 2014 to Dec 2015. The water samples were collected from Sulwade dam for before treatment which supplies water to Dhule city and for after treatment water samples were collected from distribution areas of the Dhule city of Maharashtra state, India. The parameters like Colour, Odour, Temperature, pH, Turbidity, total dissolved solids (TDS) etc. were assessed. The results were compared with the standards prescribed by National and International agencies like World Health Organization (WHO), International Standard Institute (ISI) and Bureau of Indian Standards (BIS). The study revealed that all the physical parameters are found to be in the prescribed permissible limit. Thus, the water is suitable for human use.

ALLEVIATION OF THE GLUCOSE-INDUCED DEVELOPMENTAL DEFECTS IN EARLY ZEBRAFISH EMBRYOS WITH ANTIOXIDANT SUPPLEMENT

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Abstract:

Embryos are often at the risk of developing nervous and cardiovascular defects if the pregnant woman is diabetic. Elevated glucose under diabetic conditions is thought to be one of the key teratogens in such situations. The present study was done to dissect out the mechanism by which glucose may interfere with the early development of vertebrate embryos using Zebrafish as a model system. Early gastrulating zebrafish embryos at shield stage (6 hpf) were treated with varying concentrations ranging from 1 mM to 100 mM of glucose. At this stage the embryo is supposed to be at the peak of gastrulation movements and thus susceptible to very minute changes in the surrounding molecular environment. Untreated embryos from the same batch served as controls. The embryos were treated for 24hrs, 48hrs and 72hrs. About 80% of the treated embryos exhibited slower movements with curved body axes and a wide gap in the neural fold in 10 and 100mM glucose treated groups. One of the mechanisms by which glucose may affect development is by increasing the oxidative stress. To investigate this, embryos treated with glucose were co-treated with vitamin C, a well proven antioxidant, at different time points and the recovery, if any, of the defective structures was monitored. Interestingly, embryos from the vitamin C supplemented groups showed significant recovery of the affected structures at both 24hpf and 48hpf, suggesting the occurrence of oxidative stress in the embryos treated with glucose alone. These results hint at possible antioxidant therapy during diabetic pregnancies for reducing the chances of malformations in embryos.

Ayurveda with Yoga: Preventive aspects for emerging infectious diseases- The Novel Coronavirus 19 Pandemic

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Abstract:

The novel coronavirus disease 19 pandemic is unique and unprecedented in several aspects and has challenged health care systems. Pathogens can evolve naturally or artificially and become resistant to various medicines. The novel corona virus is such evolved pathogen of corona virus group. The experience and lessons learnt from the earlier severe acute respiratory syndrome (SARS) epidemics appear inadequate and call for better approaches and strategies in public health and medical care. This review a brief recent updates regarding prevention of COVID-19, Ayurveda aspect toward infectious diseases and Ayurveda ways towards prevention of infectious diseases with special reference to COVID-19. Person with impaired immunity is more susceptible for COVID-19 and thus

immunity is an important preventing factor. Ayurveda *Rasayana* (rejuvenation) herbs, Yoga exercises, *Pranayama,* daily regimens and personal hygiene guidelines can be helpful strategies in controlling the spread of COVID-19. The preventive aspects of pandemic situations are narrated in Ayurveda with enough details. Enough strong immunity is needed to prevent or survive from COVID-19 pandemic. Ayurveda provides ways for evolving physiological responses to built immunity.

Keywords- COVID-19, Ayurveda, Yoga, *Rasayana,* Herbal, Immunity

AN ASSESSMENT OF BACTERICIDAL ACTIVITY, CYTOTOXIC EFFECT AND GREEN SYNTHESIS OF SILVER NANO-PARTICLES FROM FRUIT COAT OF *ANNONA RETICULATA* LINN

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Abstract:

Nanomaterial obtained by green synthesis technologies have been widely studied in recent years owing to constitute cost-effective and environmental-friendly methods. In addition, there are several works that report the simultaneous performance of the reducer agent as a functionalizing agent, modifying the properties of the nanomaterial as a simple and economical synthesis methodology. In present investigation, the synthesis of silver nanoparticles from of *Annona reticulata*, were studied for bactericidal activity against pathogens by agar cup well plate method using different dilutions such as 15 mg/ml, 20 mg/ml, 25 mg/ml, 30 mg/ml, 35 mg/ml and 40 mg/ml. The fraction of extracts showed

maximum activity at 25 mg/ml. Among the pathogens, the maximum zone of inhibition was noted against *Escherichia coli* (MTCC 7040) [36.2mm]; *Salmonella typhi* (NCTC 8394) [24.1mm]; *Bacillus subtilis* (ATCC 6051) [33.9] and *Staphylococcus aureus*, (Isolated) (Wound infection, Pneumonia) [19.7mm]. These results showed that the silver nanoparticle from *Annona reticulata* is an effective bactericidal agent. The cytoxicity was also done by hemolytic assay.

Keywords: Bactericidal Activity, Cytotoxic Effect, Silver Nano-particles, *Annona reticulata.*

STEVIOSIDE ANALYSIS FROM CANDYLEAF (STEVIA REBAUDIANA)

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Abstract:

Stevia rebaudiana, a medicinal plant, is a darling gift of nature. It is well-aquainted for its non-caloric bio-sweeteners and medicinal value. Stevia leaf contains phytochemicals which has therapeutic values such as antioxidants, antimicrobials, antidiabetics, antihypertensive, cardiotonic etc. Stevioside is a natural non-caloric beverage separated from the leaves of the plant *Stevia rebaudiana*. In the present effort of the work is being done to separate stevioside from the dried leaves of Stevia in its purest form. Separated stevioside was purified, analyzed and identified using a variety of chromatographic & analytical methods including TLC, HPLC, FTIR and NMR. The R_f value of TLC was 0.39, λmax ultraviolet spectra was obtained at 373 nm and high performance liquid chromatograph showed a sharp peak value with a maintenance time of 1.511 minutes. Stevioside alone was also compared to standard stevioside with analytical methods.

Keywords: HPLC, Stevioside, Thin Lyer Chromatography, FTIR, NMR

STUDIES ON FISH PROTEIN CONCENTRATE (FPC) OF INDIAN MAJOR CARPS BY VARIOUS SOLVENT SYSTEMS

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Abstract:

Fish protein concentrate was made from the Indian major carps, Catla (*Catla catla*), Rohu (*Labeo rohita*) and Mrigal (*Cirrhinus mrigala*) by various solvent extraction systems. The aim of this research is to study the sustainability of fish protein concentrate produced from Indian major carps and the highest content was determined in the order of *Cirrhinus mrigala*> *Catla catla*> *Labeo rohita*. According to result of chemical analysis performed, in *Cirrhinus mrigala,* the protein, fat, ash and moisture contents were found 95.11%, 0.05%, 3.97% and 5.68% respectively. The amino acid composition for human

nutrition was complete, approaching the model chart also determined. The nutritional quality of the trial- fish protein concentrate was near to that of cheese, egg and milk, and exceeded that of soybean and wheat. Hence the present work concluded that the quality of fish protein concentrate was better than that of fish protein concentrate-A as defined by FAO.

Keywords: Fish Protein Concentrate, Indian Major Carps, Sustainability, Vaijapur Tehsil

EVALUATION OF EXTRACELLULAR BACTERIAL L–GLUTAMINASE PRODUCTION

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Abstract:

This study describes the screening of L-glutaminase producing bacteria from different local cow feeder localities. Screening of L-glutaminase was performed using under solid state fermentation. Results showed that there were two isolates produced positive results of L-glutaminase, and one of the isolate-2 produced the highest activity, 335 U/L, equivalent to the specific activity of 62.32 U/mg. The isolate then selected for further study. Characterization of extracellular L-glutaminase from the isolate showed that the enzyme worked optimally at temperature of 29 to 44°C and pH 7.5. The enzyme was stable when NaCl solution was added up to 11% and began to decrease on addition of NaCl solution of 12% and 19% with relative activity of 84% and 89%, respectively. The effect of metal ions, Mn^{2+}, Mg^{2+}, and Co^{2+} in the form of chloride salt, were able to increase enzyme activity. The present study proven that L-glutaminase is one of the most important commercially produced industrial enzyme due to its role as flavor enhancer and antileukemic agent.

Keywords: Cattle Feeding Farm, L-glutaminase, Glutamine, Antileukamic

STATSTICAL ANALYSIS OF THE ZOOPLANKTON BIODIVERSITY IN BAANGAON LAKE, CHALISGAON (M.S.) INDIA

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Abstract:

The present paper deals with the statistical analysis of zooplankton composition, biodiversity population and their seasonal fluctuation of the fish rearing Lake, which is situated near Baangaon village at Chalisgaon, in Dist. Jalgaon (M.S.) India. During the study a total of (3187) species were found in this fish rearing lake at three different seasons e.g. monsoon, winter and summer. Among these (1043, 32.72%), species belong to Rotifera, (1483, 46.53%), species belong to Copepoda, (456, 14.30%), species belong to Cladocera (205, 6.43%), species belong to Ostracoda. The current analytical study shows that miscellany information about zooplankton biodiversity in the biological environment of the Baangaon Lake. The species biodiversity of zooplankton was calculated as per the formula which is given by Shannon and Wiener species diversity index (1949) and Odum (1971).

Key words: Zooplankton, biodiversity, fish rearing lake, seasonal fluctuation, Shannon – Wieners species diversity index.

BIOCHEMICAL PROFILE AND INHIBITORY EFFECT OF *HALICLONA PERMOLLIS* (BOWERBANK, 1866) MARINE SPONGE OF RATNAGIRI, WEST COAST OF INDIA

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Abstract:

The intertidal marine sponge, *Haliclona permollis* was assessed for the antimicrobial effect of various crude extracts, against pathogenic microbes by agar well diffusion method as well as to determined preliminary biochemical screening. The inhibition zone of methanol, acetone, chloroform and hexane extracts were found to be more potent and showing significant inhibitory activities against all test microorganisms in order respectively. In preliminary biochemical screening, the methanol and acetone crude extract contains alkaloids, tannins, flavonoids and proteins and amino acids, steroids, carbohydrates, fats and fixed oils; as well as chloroform extract contains alkaloids, flavonoids, sterol and terpenoids, carbohydrates, fats and fixed oils. But in hexane extract contains only alkaloids, terpenoids and carbohydrates. The extracts showing strong antimicrobial activity are undergoing further analysis to identify the active constituents.

Keywords: Antimicrobial activity, *Haliclona permollis*, Biochemical profile, Intertidal, Pathogens.

IMPACT OF INVASION OF EXOTIC PLANTS

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Abstract:

The present study deals with the study of exotic plants and its impact of invasion in Muktainagar Forest. Research shows that about 58 angiosperm plant species were found to be Alien which belongs to 23 families. Some of the species shows large impact on Biodiversity. Their Nativity, life form, habit and introduction mode were identified. About 79.31% of the invasive alien species are found from which 26.08 %contributes from America, 15.21% from Africa, 6.52% contributes from Australia and 8.69% contributes from United States. Family Poaceae contributed more species (09 species), followed by Asteraceae and Papilionaceae (04 species each).

Keywords: Invasion, Exotic , Alien, Biodiversity.

STUDIES ON THE DIVERSITY OF SOIL MICROFLORA AROUND SUGAR FACTORY

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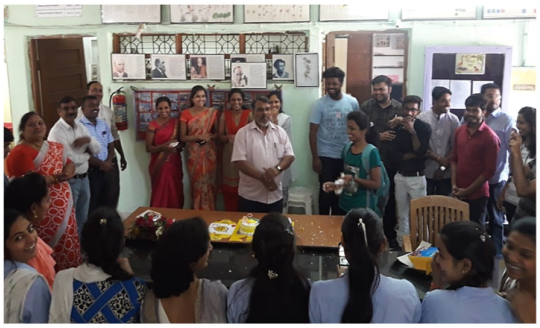
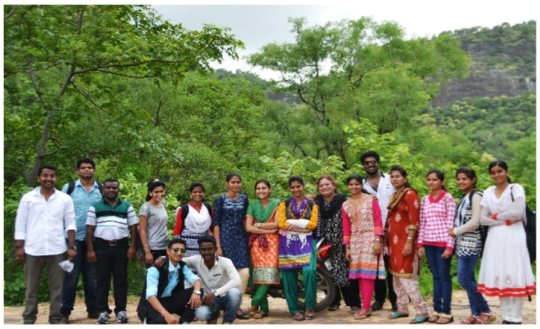
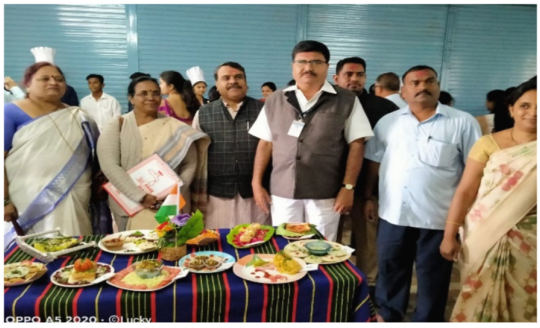
Abstract-

Sugar industry plays a significant role in Indian economy and making of employment. The many industries are used raw materials from the byproducts of sugar. The sugar mill effluent used in developing countries for agriculture as fertilizer has gained more significance as it is considered as a source of organic matter and plant nutrients and serves as good fertilizer. The present research work has been made to assess the physicochemical and microbiologicl characteristics of sugar mill effluent and its effect on the diversity and distribution of soil microbes. Sugar factory effluents indicated that fungi and bacteria were higher during summer while actinomycetes were higher during winter. A total of six fungal species were recorded.

Microbiological analysis recorded of which *Aspergillus niger*, A. flavus and Mortierella sp. were dominant in the effluent. Microbial analysis of soil samples collected from different sites around sugar factory depicted large variations among the microbes. Bacterial population was higher than the fungal and actinomycetes population. Of the total 14 fungal species recorded *Aspergillus niger*, A. flavus Rhizopus stolonifera, Fusarium moniliformae and Fusarium oxysporum showed higher frequency. Fusarium moniliformae, Fusarium oxysporum, Aspergillus flavus, and Alternaria solani are the potential pathogen.







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