

Janata Shikshan Sanstha's

KISAN VEER MAHAVIDYALAYA, WAI

Tal. Wai, Dist- Satara (M.S.) 412 803

NAAC Stats : B+ (CGPA : 2.66)

One-Day National Conference
on

RECENT TRENDS IN APPLIED ZOOLOGY

Saturday, 22nd February 2020

ABSTRACTS

organised by

Department of Zoology

In Association with

Shivaji University, Kolhapur (M.S.)



Prof. (Dr.) I.F. Pailwan
(I/C Principal and Convener)



Organising Secretary

Dr. H.D. Kanase
(Associate Professor in Zoology)

Mr. R.V. Bakare
(Associate Professor in Zoology)

JANATA SHIKSHAN SANSTHA'S
KISAN VEER MAHAVIDYALAYA WAI,
DIST: SATARA. 412 803

ONE- DAY NATIONAL CONFERENCE
ON
“RECENT TRENDS IN APPLIED ZOOLOGY”
22ND February-2020

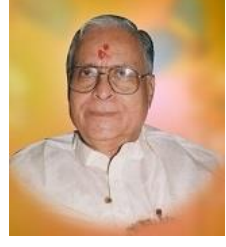
ABSTRACTS

ORGANIZED BY

DEPARTMENT OF ZOOLOGY
KISAN VEER MAHAVIDYALAYA, WAI,
DIST- SATARA (M.S.) 412 803

IN ASSOCIATION WITH
SHIVAJI UNIVERSITY, KOLHAPUR

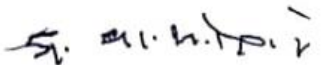
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श्री. प्रतापराव बाबुराव भोसले
अध्यक्ष, जनता शिक्षण संस्था,
वाई- ४१२८०३
जि. सातारा.

शुभेच्छा संदेश

दिनांक २२ फेब्रुवारी २०२० रोजी आयोजित 'प्राणीशास्त्रातील संशोधनाचे आधुनिक प्रवाह' या विषयावर किसन वीर महाविद्यालय, वाई व शिवाजी विद्यापीठ, कोल्हापूर यांच्या संयुक्त विद्यमाने आयोजित एक दिवसीय राष्ट्रीय चर्चासत्राच्या माध्यमातून पर्यावरण, प्राणी व मानव यांचे परस्पर संबंधाबाबत मौलिक व उपयुक्त अशी माहिती सर्वांना मिळणार आहे. प्राणीशास्त्र विषयातील ख्यातनाम तज्ज्ञ या चर्चासत्रास उपस्थित राहून मार्गदर्शन करणार आहेत. या चर्चासत्रामध्ये समाविष्ट शोधनिबंधाचे वाचन व प्रकाशन करणार आहात. सदर चर्चासत्राच्या संयोजन समिती व यामध्ये सहभागी झालेल्या विविध महाविद्यालयातील सर्व संशोधकांच्या शोधनिबंधाचे प्रकाशन विशेषांकास हार्दिक शुभेच्छा.


श्री. प्रतापराव बाबुराव भोसले (भाऊ),

प्रा. (डॉ.) देवानंद बी. शिंदे

एम.एस्सी., पीएच्.डी.

कुलगुरु

Prof. (Dr.) Devanand B. Shinde

M.Sc., Ph.D.

Vice-Chancellor



Estd:1962
NAAC 'A' Grade

शिवाजी विद्यापीठ,

विद्यानगर, कोल्हापूर - ४१६ ००४.

SHIVAJI UNIVERSITY,

Vidyanagar, Kolhapur - 416 004.

दूरध्वनी : कार्यालय - (०२३१) २६०९०६०

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MESSAGE

I am very happy to know that Kisan Veer Mahavidyalaya, Wai, Dist. Satara is organizing One Day National Conference on "Recent Trends in Applied Zoology" on 22nd February, 2020.

The theme of the conference is very vital in the present day context and I congratulate the Principal and his colleagues for organizing the Conference on this very important topic. This Conference will definitely provide a meaningful platform for the young researchers and academicians to present their views. I am also confident that the deliberations will be very fruitful and participants will richly benefit from it.

I wish the National Conference a grand success.

18 FEB 2020

(Devanand Shinde)
Vice-Chancellor



Dr. J. S. Choudhary,
Secretary,
Janata Shikshan Sanstha, Wai

Dear Prin. Dr. I. F. Pailwan,

Thanks for your invitation of One-Day National Conference on “Recent Trends in Applied Zoology” organized jointly by the Department of Zoology of the college and the Shivaji University, Kolhapur. I hope that the research papers and deliberations in the conference will help in solving specific real world problems and biological issues.

Live Stock development is a critical issue faced by many countries due to changing environment and socio-economic problems. These needs to be addressed by the research scholars.

The various themes selected for the conference will throw light on the related aspects and broaden the approach of the participants. The experts and scholars will make the conference meaningful and fruitful.

I wish the conference and its participants all the best.

Dr. J.S Chaudhari
Secretary
Janata Shikshan Santha, Wai



Prof. Dr. I. F. Pailwan
I/C Principal & Convener
Department of Zoology
Kisan Veer Mahavidyalaya, Wai.

MESSAGE

From Organizers Desk

It is my great pleasure and I am extremely delighted to host a National conference of Department of Zoology on “Recent Trends in Applied Zoology” jointly organized by Janata Shikshan Sanstha’s Kisan Veer Mahavidyalaya, Wai and Shivaji University, Kolhapur on 22th Feb. 2020 at Kisan Veer Mahavidyalaya, Wai. The conference is patronized by Hon. Prataprao Baburao Bhosale, President, Hon. Shankrao Gadhave, Vice President and members of the Janata Shikshan Sanstha, Wai.

I am very glad to inform you that Prof. (Dr.) Baban Ingole, Chief Scientist, National Centre for Polar and Ocean Research, Goa is inaugurating the conference and is starting the Proceedings with Keynote Address. Prof. (Dr.) P.S. Bhatnagar, Scientist and Officer-in-Charge, Zoological Survey of India Western Region, Pune, Prof. (Dr.) M. M. Shirdhankar, Principal, Diploma in Fisheries Engineering, Shirgaon, Ratnagiri, and Dr. M. V. Shantakumar, Head, Department of Zoology, Shivaji University, Kolhapur are participating as Resource Person. Releasing significant Scientific information on the various aspects of Applied Zoology. The present conference deals with the animals and animal life, including scientific study. It is a discipline that applies existing scientific knowledge to develop more practical applications to tackle the problems related to sustainable livestock development and to the management of animal resources. It creates ample opportunities to improve the socio- economic framework of the nation. I am sure that, the present sessions will provide valuable scientific information to create an awareness about the enhancement of the concepts of conservation and sustainable utilization by applying the basic concepts of Applied zoology for the betterment of the mankind.

The conference encompasses six academic sessions with four invited lectures and special sessions on oral and poster presentations for the incoming scientists in this field. The Organizing Committee has received sufficient motivation and encouragement from the various Departments, Friends and well-wishers to plan this conference. I hope that the conference will be fruitful and will initiate better research output and to create awareness about the application of the basic concepts of Applied zoology in the young generation. I once again extend my hearty welcome to all the participants. I also assure all the participants to have informative and innovative sessions and comfortable stay in Wai.

KISAN VEER MAHAVIDYALAYA
Wai, Dist. Satara



Prof. (Dr.) I.F. Pailwan

PRINCIPAL
KISAN VEER MAHAVIDYALAYA
Wai, Dist. Satara

ABOUT THE SANSTHA

The veteran freedom fighter KisanMahadeo alias Abasaheb Veer along with his companions such as great philosopher TarkateerthLaxmanshastri Joshi, Hon. PratapraoBhosale, Hon. Laxmanrao Patil **and their followers.** founded JanataShikshanSanstha in 1967 in Wai. Since then, inspired by the Motto "To light up the paths indeed have we come", the Sanstha has successfully been governing a senior college and seven secondary schools to impart quality education. The Sanstha has always been trying to make all Bahujans in Waitaluka educationally competent and proficient. The present President Hon. PratapraoBhosale (Bhau), former Vice President Hon. LaxmanraoJadhav- Patil (Taty), present Vice President Hon. ShriShankarrao Gadhave and all members of the Sanstha have been expending their sincere efforts for the development and progress of the Sanstha and college.

ABOUT THE COLLEGE

Kisan alias Abasaheb Veer, with the help of TarkateerthLaxmanshastri Joshi, started senior college named "ManavyaVaVanijyaMahavidyalaya" under Pradnyapathshala on 20th June 1962. Afterward, Kisan Veer got transferred the college from Pradnyapathshala to JanataShikshanSanstha in 1967. After **the demise of Kisan Veer in 1979**, the college christened after his name as "Kisan Veer Mahavidyalaya". Initially, the college was started with 80 students. At present, the college has tremendously developed its strength and it has reached up to six thousand students. The college has been working for the all-round development of all students. It has made tremendous achievements in Academics, Sports, Cultural Activities, N. C. C., N. S. S. in Shivaji University. Our college magazine, 'Krishnai', has constantly won the First Prize Award for fourteen years. Almost, on the 20 acres of beautiful and natural premises of the college, many building have been constructed so far. The college is well known for its facilities such as U. G & P. G. education facility, well-developed Library, well equipped Laboratory, vast playground of eight acres, the Y. C. M. O. U. center, Jay Kisan Hostel for the children of suicide affected families, Women's Hostel, Indoor Sports Hall, Gymnasium etc. For more than fifty years back, the college committed with its motto "To light up the paths indeed have we come" has been doing the pious work of giving quality education to the people of all walks of life. The college has great contribution to the social and cultural development of Wai.

ABOUT THE DEPARTMENT

The Department of Zoology in established in 1982. However, Zoology as Principle subject is started since 1988 onwards completed 31 batches and produced about ----graduates in zoology At present. The faculty of the department includes one professor, two associate professors and three temporary assistant teachers. It has well equipped UG laboratories, well established museum including diverse groups of preserved museum specimens for the study of taxonomy. Department has produced university rankers and meritorious students those have spread and occupied important positions in various fields.

The teaching staff of the department is involved in research guidance, minor research projects, scientific projects and participating and presenting research manuscripts in abroad, national and international conferences. The area of research is aquatic biology and fishery and protozoology. It is an excellent center to establish a career in Zoology for the young generation of a rural background.

ABOUT WAI

Wai situated at the foot of Mahabaleshwar, in the lap of nature, a holy pilgrimage, on the bank of the Krishna River in Satara District, study center of all religions and the origin of Marathi Wishwakosha is also known as the South Kashi worldwide. Huge temples constructed in stones such as Kashiwisheswar, Mahaganesha, Mahalakshmi, Mahavishnu, vast GanpatiGhat on the bank of Krishna River and Pradnyapathshala are the cultural and historical places in Wai. In addition to this, a historical castle of Nana Phadanvis in Menavli, the mausoleum of VamanPandit in Bhogaon, ancient Baudha Caves in Lohare, Table Land in Panchgani, KshetraMahabaleshwar, Dhom Dam, and Mandhardeo Temple are the famous historical places nearby to Wai. The esteemed personalities such as Padma Vibhushan awarded TarkateerthLaxmanshastri Joshi, Padmashree awarded B. G. Shirke, ShahirKrushnaraoSabale and LavaniSamradhniYamunabaiWaikar belongs to Wai itself. We feel honoured to the initial Marathi novelist LaxmanshastriHalbe, Swami KevalaynandaSaraswati, researcher of History G. H. Khare, Dalitmitra R. N. Chavan and the novelist Ravindra Bhatt etc. for their contribution to make Wai a religious place and famous for literary, cultural and historical events.

ATTRACTIONS IN MAHABALESHWAR

Lingmala waterfall

Lingmala Waterfalls present an enthralling sight of cascading water as it scatters from atop a steep cliff into thin silver streaks, often encircled by rainbow colors. The other water falls - Chinaman and Dhobi are popular with picnickers. The former can be reached by the Carviali Road. A boat ride on the tranquil, crystal-clear waters of Lake Venna entices one beyond appreciation. The cool whispers of the surroundings add to the serenity of the landscape.

Wilson point

Wilson point is also known as Sunrise point. It is the nearest and the highest point in Mahabaleshwar. It is a vast bare rock with three observation towers erected at different spots. It is a major attraction for tourists as it offers a beautiful view of the sunrise.

Venna Lake

The lake is spread over 25 acres is a great attraction for tourists. The lake offers boating and fishing facilities. Boating on the Venna Lake is a pleasure one cannot easily forget.

Arthur's Point

Arthur's Point, named after Arthur Malet, is Mahabaleshwar's most famous point overlooking the densely forested valley. It is interesting from this point, to watch a straw hat or a handkerchief tossed down, sailing attractively in the air like a spread-out parachute!

Pratapgarh

The fort, 14 kms, from Mahabaleshwar, adds a historical dimension to the holiday. Made famous by the maratha leader, SHIVAJI, the fort saw a decisive encounter between him and Afzal Khan. Afzal Khan was killed in the clash. Legend has it that Shivaji was blessed with a shining sword at the temple of Goddess Bhavani here.

PATRONS

- Hon'ble – Shri. Prataprao Baburao Bhosale
President – Janata Shikshan Sanstha, Wai
- Hon'ble – Shri Shankarrao Gadhave
Vice-president - Janata Shikshan Sanstha, Wai
- Hon'ble – Prof. Devanand Shinde
Vice Chancellor Shivaji University, Kolhapur
Secretairy – Janata Shikshan Sanstha, Wai
- Hon'ble – Prof. (Dr.) Manne V.C.
Head, Department of Zoology Shivaji University, Kolhapur.

LOCAL ADVISORY COMMITTEE

- Mr. N.B. Chavan (CDC Member)
- Mr. V.B. Karade (Vice Principal)
- Dr. B.B. Agedkar (Vice Principal)
- Dr. S.R. Sawant (Head Dept. of English)
- Dr. V.R. Veer (Head, Dept. of Geography)
- Mr. S.P. Kamble (Librarian)
- Dr. E.B. Bhalerao (Head Dept. of Botany)
- Dr. H.V. Jadhav (Chemistry)

NATIONAL ADVISORY COMMITTEE

- Dr. P.D. Raut
Head, Department of Zoology, Shivaji University, Kolhapur.
- Dr. D.V. Muley
Ex-Registrar and Head, Department of Zoology, Shivaji University, Kolhapur.
- Dr. Baban Ingole
Scientist 'E' National Institute of Oceanography, Goa
- Dr. P.S. Bhatanagar
Scientist C and office In-charge, ZSI, Western Region, Pune
- Dr. V.Y. Deshpande
Head, Department of Zoology, Y.C. Institute of Science, Satara.
- Dr. R.G. Patil (Retd. Professor, Satara)
- Dr. Nikhalje S.B.
Head, Department of Zoology, Smt. K.W. College, Sangli
- Principal Dr. Milind Hujare (Tasgaon)
- Dr. Prabha Patil (Sangli)
- Dr. Vahida I. Kalmade (Karad)
- Principal Dr. Chavan (Peth Vadgaon)
- Dr. S.S. Patil (Rethare)
- Dr. Kiran Shinde (Kolhapur)
- Dr. T.S. Bhosale (Burli)
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- Dr. S.M. Gaikwad (Kolhapur)
- Dr. S.S. Supugude (Satara)
- Dr. Dastigir Mundugnur (Sangali)
- Dr. M. Valvekar (Shivaji University Kolhapur)
- Miss S.M. Pawar (L.B.S. Satara)

ORGANIZING COMMITTEE

- Dr. I.F. Pailwan I/C Principal and Convener
- Prof. R. V. Bakare Organizing Secretary
- Dr. H.D. Kanase Organizing secretary
- Prof. R.R. Tayade Member
- Miss. R.R. Chorge Member
- Miss A.N. Bhilare Member

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PROGRAMME

Registration and Breakfast (Time: 8.30 am to 09.30 am)

Inaugural Function

(Time: 09.30 am to 10.30 am)

Chief Guest: Prof (Dr.) D.V. Muley

- Ex-Registrar, Shivaji University, Kolhapur

KEYNOTE ADDRESS : Prof (Dr.) Baban Ingo
(10.30 am to 11.30 a) Former Deputy Director, N. I.O., Dona Paula, Goa

PLENARY SESSION- I : Dr. P.S. Bhatnagar
(11.30 am to 12.30 am) Scientist 'C' and officer In Charge
Zoological Survey of India, Western Region, Pune
"Animal Taxonomy, Past and Present"

PLENARY SESSION- II: Prof (Dr.) M.M. Shirdhankar
(12.30 am to 1.30 pm) Principal, Diploma in Fisheries
Engineering, Shirgaon, Ratnagiri
"Aquaculture Prospects in Western Maharashtra"

(Lunch Break - Time: 1.30 pm to 2.15 pm)

PLENARY SESSION- III : Dr. M.V. Shiantakumar
(2.30 pm to 3.30 pm) Head, Department of Zoology
Shivaji University, Kolhapur
"Invasive Pests: A New Threat in Agriculture"

PAPER PRESENTATION/ POSTER PRESENTATION
(3.30 pm to 4.30 pm)

VALEDICTORY FUNCTION
(4.30 pm to 5.15 pm)

ABSTRACTS

KEYNOTE ADDRESS

S. N.	Names	Titles
1	Prof (Dr.) Baban Ingole Former Deputy Director, National Institute of Oceanography (NIO), Dona Paula, Goa	Diversity, Sustainable Use And Conservation Of Traditional Medicinal Plants Of India

PLENARY LECTURES

S. N.	Names	Titles
1	Dr. P.S. Bhatnagar Scientist 'C' and officer In Charge Zoological Survey of India, Western Region, Pune	Animal Taxonomy, Past and Present
2	Prof (Dr.) M.M. Shirdhankar Principal, Diploma in Fisheries Engineering, Shirgaon, Ratnagiri	Aquaculture Prospects in Western Maharashtra
	Dr. M.V. Shantakumar Head, Department of Zoology Shivaji University, Kolhapur	Invasive Pests: A New Threat in Agriculture

ORAL PRESENTATION

S. N.	Names	Titles
1.	Shaikh N.A. Kokil S.D. and Chavan J.D.	Antimicrobial Activity of Ocimum Sanctum on <i>Xanthomonas spp.</i>
2.	Ganeshwade R.M	Biochemical Changes Induced by Dimethoate In the Ovary of <i>Puntius Ticto</i> (Ham)
3.	Sontakke G. K	Biochemical Composition of Some Species of Freshwater Ostracods
4.	Pawar N.T; Bhawane G.P and Khan I.N.	Comparative Study of Total Haemocytes Count in Bivoltine Races Csr2 and Csr2x4 Of Silk Worm <i>B. Mori</i>
5.	Patil T. S. Bhosale A. R., Yadav R. B., and Muley D. V.	Diversity of Catfishes from Rivers of Kolhapur District
6.	Bhalerao E.B., Shelar P.B. and Mokashi A.A.	Ecotourism Potential and Environmental Problems in Wai
7.	Shaikh, N. K. Raut, P. J. and Dr. Nalawade. S. P.	Effect of Fe And Zn Nanoparticles on Protein Profile and Economic Parameters of <i>Bombyx Mori</i> .
8.	Wali, B. S., Lagade, V.M. and Raut, P.D.	Effect of Noise Pollution on Overall Health of Female Tobacco Workers Working in Tobacco Processing Units at Jaysingpur. (Kolhapur, MH)
9.	Shewale A. S. and Bhosale T. S.	Herbicidal Influence on The Respiratory Metabolism of Freshwater Crab, <i>Barytelphusa Cunicularis</i> (West Wood 1836).
10.	Chavan V. R.	Inland Fisheries Exploitation and Management about Sustainability of Inland Fisheries in District Kolhapur

11.	Bhilave M. P.	Integrated Freshwater Fish Farming Practices in India
12.	Yadav R. B. and Muley D. V.	Integrated Taxonomical Analysis of <i>Puntius Amphibius</i> from Western Ghats of India.
13.	Kamble V. V., Nandudkar S. V. and Santha Kumar M. V.	Status of Invasive Pest, <i>Spodoptera Frugiperda</i> (J. E. Smith) (Lepidoptera: Noctuidae) In Karveer Taluka of Kolhapur, Maharashtra
14.	Gaikwad S. M. and Salunkhe D. R.	The Digestive System of Praying Mantis <i>Hierodula Coarctata</i> (Saussure, 1869)
15.	Shaikh N. A. and Pawar S. S.	Zooplankton Diversity of Nehr Dam in Nehr Village of Khatao Taluka, In Satara Dist. Maharashtra.
16.	Jadhav R. N.	Antimicrobial Effect of <i>Acacia catechu</i> (Bark) Extract on Antibiotic Resistant <i>Streptococcus mutans</i> - In Vitro Study
17.	Patil,S.R .and Manjare, S. A.	Butterfly Garden as conservation measure and learning resource- A case study
18	Nalawade, S.P. and Bakare, R.V.	Study Of Proteins And Activity Of Proteases During Embryonic Development Of <i>Chilo Partellus</i> (Swinhoe)
19.	<u>Ingawale Manjusha and Sanas Nishigandha</u>	Biodiversity Of Phytoplankton From Back Water Of Dhom Dam, Near Velang, Wai. (Maharashtra)
20.	Junghare,N. R. Sapkal,M.B. Bhosale A. R. and Yadav O. V.	Assessment of Threats to Anuran Fauna in and around Radhanagri Wildlife Sanctuary, Kolhapur (MS), India
21	Tayade R.R, and Patil R.P.	Snake Diversity In Wai Region Of Maharashtra, India
22	Bhilare A.N. and Dr. Pailwan I.F.	Wound healing acceleration using curcumin and carbon nanodot incorporated nanofibrous PVA scaffold in mice model(<i>Mus musculus</i>)

POSTER PRESENTATION

S. N.	Names	Titles
1.	Vaidya R. R., Dhomkar S. S. and Suryawanshi R. A.	Allelopathic Effect of Two Common Weeds on Seed Germination, Root-Shoot Length and Biomass Content of Wheat.
2.	Vaidya R. R., Dhomkar S. S. and Killedar R. R.	Pollinator Responses to Floral Colour Change in <i>Quisqualis Indica</i>
3.	Nikalje S. B. and Mehata.P. C.	Diversity of Free-Living Freshwater Ciliate Protozoans from Sangli, Western Maharashtra
4.	Jamdade C. B., Bodare R. D. and Sadawarti P. N.	Invitro Antioxidant Potential of Pomegranate Juice
5.	Khairmode S. P., Desai S. S. and Walvekar M. V.	Sialoadenectomy Effect on Peripheral Cd3, Cd4 And Cd8 Cells in Blood of Male Mice (<i>Mus Musculus</i> Linn.)
6.	Bhilare A. N. and Pailwan I. F.	Zooplankton Diversity in Some Freshwater Bodies Around Wai Tehsil, Dist- Satara (M.S.) India.
7.	Padule A.R., Gaikwad V. D. and Pailwan I. F.	Studies of The Physicochemical Parameters of Soil Samples of Hilly Area of Patan Tehsil Satara District M.S. (India)
8.	Gaikwad V. D., More R. B. And Padule A. R.	Study of Physicochemical Parameters of Uttermand Reservoir in Patan Tahsil, District Satara (M. S.) India
9.	Kore,Y. D. and Nikalje S. B.	Survey of Dragon Flies from Sangli, Western Maharashtra
10.	Dubal, R. S, Katkar G. R., Yadav U.C. and Jadhav S.A.	Survey of health status, Student of college girls during Menstruation Phase of Rajarshi Chh. Shahu College, Kolhapur.
11.	Padule, A. R. , Gaikwad V.D. , Pailwan, I. F.	Study Of The Physicochemical Parameters Of Soil Samples Of Hilly Area Of Patan Tehsil Satara District M.S. (India)
12.	Katkar, G.R., Injal, S.S. and Gangdhar, O.R.	Study of Diversity of Zooplanktons from Kalamba Lake, Kolhapur Rajarshi Chh. Shahu College, Kolhapur.
13.	Supekar, S. A. And Deshpande V. Y.	Diversity Of Freshwater Ciliates (Holotricha) From The Water Bodies In Bopardi Near Wai, Dist Satara, Maharashtra
14	Shinde R. S., Kamble G. G. Meher S. V., Pathak S. A., Duraphe A. H., Rajguru R. B., Mane P. C. and <u>Chaudhari R. D.</u>	Study Of Lepidopteran (Butterfly) Diversity From Parts Of Northern Western Ghats

15	Gangavane T.A., Jamadade C.B., Bodare R.D.	Antihyperglycemic activity of <i>mangifera indica l.</i> Plant ethanolic extract on alloxan induced diabetic adult and aged mice
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**PLENARY
LECTURES**

PLENARY LECTURE I TAXONOMY: PAST AND PRESENT

Bhatnagar,P.S.

Scientist-E & Officer-in-Charge

Zoological Survey of India

Western Regional Centre

Akurdi

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Summary

Father of taxonomy Linnaeus proposed guidelines and rules for use in taxonomy in his book *Systema Naturae*. Initially the focus was on plant taxonomy one of the reason being their medicinal value. Darwins's theory of natural selection was coupled to the taxonomy giving rise to systematics ; evolutionary relationships among organisms , thus giving an insight closer to the natural system ; close to the way organisms have originated. In modern times molecular biology and computational and information technology approaches are increasingly being used. We need to take help of integrative taxonomy as the varied methods used in taxonomy have their advantages and limitations, Keeping in view the large number of organisms involved, citizen science approach will also be helpful.

Introduction :

Taxonomy is a science that deals with classifying , identifying and naming organisms and an organized effort began approx 260 years ago. Initially cave man used to make drawings and paintings of animals in the caves of different organisms and hunting-gathering mode of living obviously was dependent on some kind of taxonomic approach. Taxonomy can be thought of began in a more organized way since the time of Philosopher Ariatotle in 3rd century BC ,who gave *Historia Animalium* (Mayr,1982).since 16th century biologists have made efforts in this area.

Historical Background :

Linnaeus used both the essentialism (distinguishing characters that set an organism apart from other organisms and downward classification (from biggest group; summum genus to sets of 2 subordinate groups till only one item is left . Linnaeus 's *Systema Naturae* (1735) included classification for animal kingdom and common rocks and minerals . Animals were divided in to quadrupeds, birds, amphibians (including reptiles) , fishes and worms which included all animals that did not fit in to other groups. Then Linnaeus wrote *Species Planatarum* (1753); it used biological nomenclature extensively and also set rules and guidelines for future nomenclature(though biological nomenclature was used before Botanist Gaspard Bauhin's works) first published in 1623. (*Pinax Theatri Botanici*) . later on bacteria and fungi began to be classified separately from plant kingdom. In 1820 George Golsd first used Protozoa including sponges,

ciliates, diatoms and other common protists. In 1866, Ernst Haeckel wrote *Generelle Morphologie der Organismen* after going through Darwin's *Origin of species* and proposed 1st classification using evolutionary relationships. Thereafter, he revised it in the form of *Das Protistenreich*. Robert Whittaker proposed for the first time a five kingdom classification – Monera, Protista, Fungi, Plantae and Animalia in approx six decades ago. Thereafter, Theophrastus (Father of Botany), wrote history of plants with details of over 500 plant species. In 1st century AD Dioscorides gave *Materia Medica*; with over 600 plant species of medicinal values, spices and perfume etc. British naturalist – John Ray, who authored *Historia Plantarum*, was first to classify plants as monocotyledons and dicotyledons and classified plants based on multiple characteristics.

Therefore, taxonomy which was based on characters of organisms in older times, after Darwin's Natural Selection Theory became systematic; a more natural classification of organisms.

Present scenario :

Looking at the present scenario, various definitions of species such as BSC, PSC, ESC have been proposed and species definition is still an on-going exercise. Besides, cladistics and phenetics have also been proposed. Compared to cladistics, phenetics is a study focused on characteristics in a quantitative way and hence the latter is also called numerical taxonomy. Calculations in phenetics weigh taxonomic characters equally to exclude bias. Phenetics includes maximum parsimony which works well for small number of taxa and maximum likeness, which is used for phylogenetic constructions based on molecular data, genotypic data and the distances found in genes for finding out genetic variation (Lukhtanoc,2010). It also makes use of Bayesian statistics which together with prior probability creates posterior probability making faster results on computers and algorithms.(Huelsenbeck et al.,2001).

Another interesting discovery was by Carl Woese who found that ribosomal RNA in bacteria in Archaea is different from other bacteria in terms of structure of rRNA and patterns of RNA polymerase.(Woese et al.,1990). In yet another development, methods like DNA-DNA hybridization and sequence analysis has shown good outcome in separating different fungi (Brasier,1997).

Modern methods also include DNA barcoding, phylocode and taxonomic databases. DNA barcoding is helpful in differentiating cryptic species, however, DNA barcoding also has limitations e.g. enough number of individuals should be sampled to eliminate possibility of variation between individuals as variation between species. Besides, DNA barcoding focuses only on one gene or a small portion of organisms's genome (Dasmahapatra and Mallet,2006). While the idea that fuels PhyloCode is the use of clades and naming them. Reference taxa used to define taxa and change in phylogenies are some of the concerns with PhyloCode.

Another growing trend is that of taxonomic database. Taxonomic database based on peer review system are preferred by many of the taxonomists.

Present and future challenges :

At present the challenges before taxonomists are – a) lack of adequate understanding of taxonomy's epistemology, b) far greater emphasis on ecological or molecular studies c) over interpretations of the contributions of multiple authors describing a species d) sometimes perspectives are also influenced by the taxa that are well known. A change is possible by integrative taxonomic approach (Darglio and Dawson,2019).

Thus, integrated taxonomy will be helpful in future as each method has its advantages and limitations. Reducing costs, pooling resources and information and exploring unexplored areas will be some of the challenges in future. Citizen science can also be helpful keeping in view the large number of organisms to be discovered.

Acknowledgement: Thanks are due to the Director, Zoological Survey of India.

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PLENARY LECTURE II

Aquaculture Prospects in Western Maharashtra

Principal

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ABSTRACT

Western Maharashtra has six districts namely Ahmednagar, Pune Satara, Sangli, Solapur and Kolhapur. The economy of western Maharashtra is agrarian. Sugarcane is the main crop of the region. Many reservoirs have been constructed in western Maharashtra to support irrigation. The total hectareage of the reservoir in western Maharashtra is 80,036 ha. These reservoirs are the best resource for the aquaculture development of the region. The reservoir can be best utilised for the culture-based aquaculture as well as for the cage culture. Excess use of fertilizers and water for the sugarcane crop has led to sodic soils and have become useless for the cropping. These sodic soil lands can be recovered by a sub-surface drainage system with the incorporation of fish culture in the sub-surface drained water. The total sodic soil land available in Western Maharashtra is 3,30,000 ha. The agriculture is supported by farm ponds, under the scheme of '*Mageltyalashettale*'. The total number of farm ponds available in western Maharashtra is 36,565. The farm ponds constructed under '*Mageltyalashettale*' are small with the dimension of 30X30X10 m. In addition to these farm ponds many more have been constructed by the farmer. These farm ponds are one of the great resource for the additional income for agriculture farmers through aquaculture. Ornamental fish culture is one of the other avenues for the farmers. Many more schemes are available under the blue revolution to support and promote the aquaculture enterprise. On the basis of the available aquatic resources and aquaculture practices, there are great prospects for aquaculture in the western Maharashtra.

Keywords: Reservoir, farm pond, sodic soil, aquaculture, western Maharashtra

PLENARY LECTURE III

INVASIVE PESTS: A NEW THREAT IN AGRICULTURE

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The globalization has increased international agricultural trade, and movement of seeds and planting material has enhanced the risk of introduction of invasive pests into India. On entry, these pests are causing substantial damage to the native flora and fauna, and also resulted in the extinction of species. The prominent invasive pests that are of concern in Western Maharashtra are Spiraling whitefly, *Aleurodicus dispersus* Russel (Hemiptera : Aleyrodidae) (1993); Silver leaf whitefly, *Bemisia argentifolii* Bellows (Hemiptera : Aleurodidae) (1999); Papaya mealy bug, *Paracoccus marginatus* Williams & Granara de Willink (Hemiptera : Pseudococcidae) (2005), Cotton mealy bug, *Phenacoccus solenopsis* Tinsley (Hemiptera : Pseudococcidae) (2006). All these sucking pests insert their mouth parts into the host plants and suck the juice. The infestation leads to structural deformities in leaves and stem, honey dew secreted by these pests act as a medium for the growth of sooty mold fungus. Due to this, the commercial value of the Agricultural produce would get severely affected. For instant control of these pests, farmers are resorting to repeated application of various pesticides. As all these pests reside on the lower surface of the leaves, how far these pesticidal applications remain effective is uncertain. Further, the tiny size of these sucking pests make them to hide in cracks and crevices increases the complexity of out of reach to pesticidal application. Very recently the maize fields are being infested with the Fall armyworm, *Spodoperda frugiperda* (J.E. Smith) (Lepidoptera : Noctuidae). This American native pest is distributed all over Karnataka, Maharashtra, Telangana, Gujarat etc.. The intensity of this pest is so serious that farmers are applying combination of chemical pesticides repeatedly. As this pest resides in leaf whorls, the chances of applied pesticides reaching it are remote. As chemical pesticides are hazardous to environment, humans and his domestic animals, investigations were made to find out eco-friendly biological control agents that are associated with the life stages of all these pests. The studies revealed that presence of Predators, parasitoids and pathogens. In this paper, diversity of all these natural enemies, their biology, feeding efficacy, parasitization ability, mass multiplication, field release and Impact studies were discussed. Further, the conservation techniques of all these Biological control agents were brought to the light of the farming community.

Key words: Invasive pests, Economic loss, Biological control, Predators, Parasitoids, Pathogens, Conservation

**ORAL
PRESENTATION**

O -1

Antimicrobial Activity of *Ocimum Sanctum* on *Xanthomonas spp.*

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Abstract

Lemon bacterial canker disease caused by *Xanthomonas spp.* Bacteria Canker is the most severe disease on Lemon, which is caused by *Xanthomonas spp.* The pathogen affects different plant parts like leaf, stem and fruit. Leaf extract of were tested against *Xanthomonas spp.*; leaf extract of *Ocimum sanctum* gave promising results. Hence, leaf extracts of *O. sanctum* tested for its antibacterial activity against on *Xanthomonas spp.* The in vitro studies have been performed by using Agar diffusion method to examine the activity. Fresh leaf extracts of *O. sanctum* plants were screened against of *Xanthomonas spp.* The maximum activity was recorded against *Xanthomonas spp.* The ultimate aim of the research work was to develop economically and technically viable field formulations for the farmers, which will be Bio-ecologically compatible for management of plant bacterial diseases.

Keywords: Antibacterial, *Xanthomonas spp.*, *Ocimum sanctum*, In vitro, Agar diffusion.

**BIOCHEMICAL CHANGES INDUCED BY DIMETHOATE IN THE OVARY OF
PUNTIUS TICTO (HAM)**

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Abstract

Freshwater fish *Puntius ticto*, exposed to lethal (5.012ppm) and sublethal (2.506 and 1.253ppm) concentrations of Dimethoate for 4 days (Acute exposure) and 60 days (Chronic exposure) respectively. Biochemical changes in the ovary were analyzed after exposure period. Acute exposure resulted into significant decrease in protein, moderate decrease in glycogen, least decreased amount of cholesterol and ascorbic acid was observed. Whereas decreased amount of protein, glycogen, cholesterol and ascorbic acid was observed at chronic exposure.

Key words: Acute and Chronic, Dimethoate, Biochemical changes, ovary, *Puntius ticto* (Ham).

**BIOCHEMICAL COMPOSITION OF SOME SPECIES OF FRESHWATER
OSTRACODS**

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Abstract

Estimation of biochemical constituents of zooplanktons is important in their physiological functions, metabolism and nutritive value which are element to the freshwater ecosystem. The aim of present study to determine biochemical composition such as *Cyclocypris globosa*, *Cypria mediana* and *Strandentia elongata* of freshwater ostracods cultured under controlled conditions in the laboratory. The results of present study revealed that the protein, lipid and total glycogen composition were high in *Cypria mediana* [23%, 15.7% & 0.12%] followed by *Strandentia elongata* [22.6%, 13.4% & 0.10%] and *Cyclocypris globosa* [20.4%, 12.2% & 0.9%] respectively.

Keywords: Freshwater ostracods, Biochemical composition, Protein,etc.

O – 4

**COMPARATIVE STUDY OF TOTAL HAEMOCYTES COUNT IN BIVOLTINE RACES
CSR2 AND CRS2X4 OF SILK WORM *B. mori***

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Abstract

The haemocytes are suspended in haemolymph, a circulatory medium of insect. They are directly related with immune system of animal (Strand, 1996). The Plasmacyte is a stem cell from which different cells are produced and released in the circulation. Little information is about the development or the transformation of the different haemocytes types into one another in the silkworm, *B. mori*. Hence in present study the total haemocyte count has been investigated in Vth instar larva of bivoltine races CSR2 and CRS2x4. The seven different cells have been reported as Prohaemocytes, Granulocytes, Adipohaemocytes, Plasmacytes Spherulocytes, Oenocytoids, and Coagulocytes. The different haemocytes are studied from 1st to 7th day of Vth instar in both mentioned races and results are compared with each other and correlated with immunity of animal.

Key words: - Silk worm, bivoltine races, haemocyte count

DIVERSITY OF CATFISHES FROM RIVERS OF KOLHAPUR DISTRICT

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Abstract

In the present investigation freshwater fauna of catfishes from rivers of Kolhapur district was studied. Total 16 species of catfishes were recorded from this region. These species are belonging to 6 families i.e. Bagridae, Siluridae, Clariidae, Schilbidae, Sisoridae and Heteropneustidae. Among the families Bagridae was found dominant showing 6 species whereas, Siluridae with 4 species, Schilbidae and Sisoridae representing with 2 species each, Clariidae and Heteropneustidae with 1 species each. As per the IUCN red list, Out of 16 species 4 species are near threatened, 2 species are vulnerable, 1 species is endangered, 1 species has data deficient and 8 are least concern. Maximum numbers of catfish species were recorded from Panchganga river. The results revealed that, the rivers of Kolhapur district provides desirable habitat for the catfishes. Catfishes plays crucial role in aquatic ecosystem and also used as source of food, therefore these species are commercially important for aquaculture.

Keywords: Catfishes, Diversity, IUCN red list, Kolhapur.

ECOTOURISM POTENTIAL AND ENVIRONMENTAL PROBLEMS IN WAI

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Abstract

Wai has long been a cultural center and probable spot for ecotourism. Exploring the prominently built several architecturally significant temples in Wai as Harihareshwar, Kaleshwar, Dholya Ganpati, Kashi Vishweshwar, Wakeshwar, Bhadreshwar, Sonjai, Mandhardevi are holy places of worship by several peoples. Krishnabai Utsav is the main festival in Wai. Some forts like Pandavgad, Kamalgad and famous Nana Phadnis Palace and Palpeshwar caves are known for its historical importance. Marāthi Vishwakosh is famous institute for researchers. The world famous hill stations Panchgani and Mahabaleshwar are tourist places near wai. Govardhan Sanstha is the famous institute for pioneer model project of electricity generation from cow dung. Dhom and Balakwadi dams are boat riding points of tourist attraction.

Increasing ecotourism in recent days has resulted in unprecedented rise in population and the impulses of the development processes that have led to increasing amounts of pollution, encroachment and exploitation of natural resources as water and open land due to upcoming industries, unrestricted sewage clearance in river, festivity of pilgrims and faulty cropping practices causing water problems. Reduction in flows of river due to dam construction has left the river in a remorseful state. Proper steps are necessary towards sustainable development and eco-friendly approach to maintain harmony with nature.

Key words: Wai, Ecotourism, Pollution and Sustainable development

O -7

EFFECT OF FE AND ZN NANOPARTICLES ON PROTEIN PROFILE AND ECONOMIC PARAMETERS OF *BOMBYX MORI*.

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Abstract

Silkworm rearing is a traditional industry in Asia and the life of many people depends on it. *Bombyx mori* contribute 90% of total silk production in Asian countries. The silk is a protein fiber produced by cocoon of silkworm. To increase the quality and quantity of silk additional supplements are required such as vitamins, minerals, amino acid etc. The recent study deals with nanoparticles as a supplementary source to increase the growth of *B. mori* to obtain good quality of silk and its economic parameters. Use of Fe and Zn nanoparticles increase the growth rate of *Bombyx mori* at 20 to 50% concentration. The silkworm which treated with Fe nanoparticles shows high protein quantity as compare to Zn nanoparticles. At the end of work analysis of economic parameters like length of larvae, weight of cocoon, length of silk thread were done. Antibacterial activity of Fe and Zn nanoparticles were performed by using different bacterial strains.

Keywords: - Silkworm, Fe and Zn nanoparticles, Antibacterial activity etc.

**EFFECT OF NOISE POLLUTION ON OVERALL HEALTH OF FEMALE TOBACCO
WORKERS WORKING IN TOBACCO PROCESSING UNITS AT JAISINGPUR.**

(KOLHAPUR, MH)

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Abstract

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

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

**HERBICIDAL INFLUENCE ON THE RESPIRATORY METABOLISM OF
FRESHWATER CRAB, *BARYTELPHUSA CUNICULARIS* (WEST WOOD 1836).**

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Abstract

Glyphosate based herbicide -Roundup, on the respiratory metabolism of fresh water crab, *Barytelphusa cunicularis*. Glyphosate (N-phosphonomethyl glycine) is a broad spectrum of herbicide and crop desiccant. Glyphosate is an organophosphorous compound, specially a phosphonate. Herbicides are synthetic compounds having the ability to inhibit the growth of weeds, grasses, plants or to kill it. The purpose of the present study was to examine the influence of herbicide. The animals were collected from the fresh water brook which is started from Village - Amrutwadi of Tahasil -Wai, Dist-Satara and ends in river Krishna near Panchwad about 25 Kms away from Satara city. They were brought to the laboratory and acclimated for 3-4 days. The selected animals were subjected to sub-lethal concentration on herbicide-Roundup (0.53ppm).The effect of Roundup on; the oxygen consumption of freshwater crab species *Barytelphusa cunicularis* was studied. The animals were subjected to sub-lethal concentration of herbicide - Roundup at 24, 48, 72, and 96 hours after regular intervals. The results were plotted and discussed in details.

Key words: *Barytelphusa cunicularis*, Glyphosate based herbicide-Roundup, Oxygen consumption

**INLAND FISHERIES EXPLOITATION AND MANAGEMENT ABOUT
SUSTAINABILITY OF INLAND FISHERIES IN DISTRICT KOLHAPUR**

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Abstract

Inland fisheries in India make substantial contribution in food security, building the economy and changing the social life of marginal fisher folk. Poor and undernourished people around the nation benefit from these low-cost protein, recreation and economics provided by inland fisheries. Extensive riverine pollution, decreasing fishery potential, decrease in active engagement of fisher folk, declining fish diversity, density and distribution added with extreme negligence to this crisis has put a question on sustainability of inland fisheries in Maharashtra. Dry and polluted rivers, stagnant reservoirs, increasing sedimentation, potential change in monsoon, leasing policy has an adverse impact on the inland fisheries of Kolhapur. Inland fisheries are thus threatened and hence not the part of high-profile fisheries and considered as, 'backward, informal and marginal.' Faced with such challenges inland fishery management failed to have relevance as a basis of sustainability. Six major rivers, sixteen minor rivers and four hundred and thirty-three reservoirs, numerous dams and KT weirs provide suitable habitat for fish and sound basis for inland fisheries for Kolhapur district. The proportion of the involvement of people in fisheries in the district and the productivity seems to be improper with the available aquatic resources. Aquatic resources are subject to numerous anthropogenic activities which have cause shift in the status of fisheries in the district. Inland fisheries are heavily exploited and have very little room for expansion by better management. Sustainability of inland fisheries needs more investment and assessment; capacity building of fisher folk, incentive for women fisher folk participation, and develop positive approaches for water management. Inland fisheries if get a recognition as a source of innovative livelihood, food security and human welfare it will help to sustain and enhance their value for better future.

Keywords: Inland fishery, Kolhapur, capacity building, sustainability

INTEGRATED FRESHWATER FISH FARMING PRACTICES IN INDIA

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Abstract

The belief that in the inexhaustibility of capture fishery resources has been belied since long. Time has shown that uncontrolled fishing and highly destructive devices of fish capture, deplete fishery resources and are followed by great economic distress. The purpose of fishery management is to obtain maximum sustainable yield of fish from waters and assure a recurring good harvest of fish without depleting the resource and wastage of fishing efforts. The management includes regulation like- protective legislation on mesh limit, legal size, closed season, declaration of sanctuaries, limit on catch, restriction on effort, prohibition of use of destructive methods of fishing, etc. The basic of regulation is that “every fish should be given an opportunity to breed at least once”. The Indian Fisheries Act (1897) (Government of India, 1956) is introduced to prevent exploitation of fishes, which is the single biggest cause of changes in the fish populations and community. One of the biggest problems facing ichthyologist, fishery biologists or anyone interested in fish is that of management. As humans increase their exploitation of fish populations, as they increase their use of water, as they pollute waters and as they change the nature of air and land, which interacts with the waters, they cause the populations of fishes to change. A few species may actually increase in abundance, but most will decline, some to the point where they can no longer be harvested at high levels, but others to extinction. Under such pressure fish communities change dramatically and the diversity of fish life decreases. An earth turned into a wasteland for fish will equally be wasteland for humans. On the other hand wise utilization of waters and life within them can provide benefits for humankind for the indefinite future. The concept of integrated freshwater fish farming practices in India was introduced to judiciously exploit available water bodies and provide sustainability among rural youth.

Key words: freshwater fish, management, sustainability

O-12

Integrated Taxonomical Analysis of *Puntius amphibius* From Western Ghats of India.

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Abstract:

In present investigation, integrated taxonomic study were carried out in *Puntius amphibius* from Western Ghats of India. The taxonomic uncertainty between *Puntius amphibius* and *P. mahecola* is still unsolved. The present study will give a primary database study to understand the taxonomy of *P. amphibious*. The morphologically upper half part of body is blue fading to the white with some golden tinge on the flanks and abdomen. One black spot is on the base of the caudal fin. Upper edge of the dorsal fin usually stained with black shade. The maxillary barbels are present which are long and reaching up to the center of eye. The lateral line is well developed and complete, shows 24-26 scales in row with 24-26 pores on it, the transverse scale rows consist of 4|1|3 - 4½|1|3½, 7 – 8 pre-dorsal, 9-14 pre-pelvic and 18-21 pre-anal scales. Dorsal fin consists of unbranched 3 and branched 8 fin rays, pectoral fin consists of 1 unbranched and 12-13 branched fin rays, pelvic fin bears 2 unbranched and 7 branched fin rays and anal fin consist of 2 unbranched & 5 branched fin rays. Live fishes were collected from SUK tank, Kolhapur for the karyological analysis. Gill and kidney cells from four male and six female fishes were used for the study. Conventional staining of both the cells showed diploid chromosomes $2n=48$ and reported 54 fundamental number (NF) in both the sexes. Karyologically it composed of 2 metacentric, 2 sub-metacentric, 2 acrocentric and 42 telocentric chromosomes from 25 metaphasic field analysis. The karyotype formula for the *P. amphibius* is $2n$ (diploid) $48 = 2m+2sm+2a+42t$.

Keywords: Morphology, Karyology, *P. amphibius*, Western Ghats of India

O-13

STATUS OF INVASIVE PEST, *SPODOPTERA FRUGIPERDA* (J. E. SMITH) (LEPIDOPTERA: NOCTUIDAE) IN KARVEER TALUKA OF KOLHAPUR, MAHARASHTRA

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Abstract

Spodoptera frugiperda (J. E. Smith) is an invasive, polyphagous and migratory pest of maize, sorghum, forage grasses for livestock, rice, cotton, turf grasses and peanuts in eastern and central North America and South America. In 2018, *S. frugiperda* was reported from the Indian subcontinent from Shimoga, Karnataka. The pest has spread to many parts of India within six months. The major areas of the infestation have been reported in Maharashtra, Tamil Nadu and Telangana. Due to polyphagous nature of the pest, it feeds in large numbers on the leaves and stems of more than 80 plant species, causing major damage to economically cultivated crops. In order to study the infestation status of *S. frugiperda*, survey is carried out during 2018-2019 in various villages of Karveer taluka in Maize fields. The population of the pest was found to be prevalent throughout the year with a range of 0.1 – 2.4 / plant. The predator population was maximum (2/plant) during March, 2019. The incidence of a larval parasitoid, *Campoletis chloridae* Uchida (Hymenoptera: Ichneumonidae) was maximum (0.4/plant) during August, 2019. The larval mortality due to microbial infection was maximum (0.4/plant) during July, 2019. The study revealed that Karveer Taluka of Kolhapur district is having rich diversity of natural enemies of *S. frugiperda*. The exploitation of these natural enemies by working out their biological attributes and mass production technique would ensure the successful suppression of this invasive pest.

Key words: Fall armyworm, Seasonal Incidence, Biological control, Predator, Parasitoid, Microbial agents population distribution

O-14

THE DIGESTIVE SYSTEM OF PRAYING MANTIS *HIERODULA COARCTATA* (SAUSSURE, 1869)

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Abstract

The praying mantis *Hierodula coarctata* is a predatory insect considered as a biological control agent. The alimentary canal of *H. coarctata* is divisible into foregut, midgut, and hindgut. The foregut is composed of the pharynx, esophagus, crop, and proventriculus. The midgut is a straight cylindrical tube, narrow anteriorly and wider posteriorly whereas hindgut is divisible into two regions the ileum and rectum. Histologically, entire alimentary canal shows outer muscularis, basement membrane, and inner epithelial layer. The foregut and hind gut is internally lined by chitinous cuticle called intima wherein midgut there is peritrophic membrane on the inner side instead intima. The midgut epithelium shows merocrine secretion and consists of typical columnar epithelial cells and nidi cell groups at regular interval.

Key words: Anatomy, Histology, Digestive tract, *Hierodula coarctata*.

O-15

**ZOOPLANKTON DIVERSITY OF NEHR DAM IN NEHR VILLAGE OF KHATAO
TALUKA,IN SATARA DIST. MAHARASHTRA.**

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Abstract

The present study was carried out to study zooplankton diversity of Nehr Dam for a period of six months. i.e. from August to January 2019-2020. The present study reveals 30 zooplankton species which comprises of 11 genera of rotifers, 10 of Cladocerans, 7 of copepods and 2 of ostracod species. The values of number of zooplankton species indicating the pattern of biodiversity have exhibited a different dominating trend of its major subgroups as Copepoda, Rotifera, cladocera, Ostracoda.

Keywords: Zooplankton, Nehr Dam, Nehr, Khatao, Satara

O-16

Antimicrobial Effect of *Acacia catechu* (Bark) Extract on Antibiotic Resistant *Streptococcus mutans* - In Vitro Study

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Abstract

An antimicrobial can be defined as an agent that causes the death or inhibit the growth of microorganisms with the least damage to the host cells . Plants are the most important and rich source of medicine as it produces different types of bioactive compound. It is estimated that about 80 % of the rural population in developing Asian nation depend on home care and traditional medicine for major therapies. *Streptococcus mutans* is Gram positive, spherical shaped bacterium. It is alpha hemolytic, facultative anaerobic and is a part of normal flora of oral cavity. It is a most common cause of dental caries as it produces acid which carry out erosion of tooth enamel. Bacteria become antibiotic resistant by different ways. R-plasmid often contains genes for resistance to different antibiotics. Plasmid can be transferred between bacterial cells in a population. Patient suffering from antibiotic resistant strain fail to respond antibiotic treatment. So there is a continuous demand of new drug. This problem of drug resistance could overcome by herbal drugs. So the demand of herbal products as therapeutic agents is increasing all over the world. In the present study antibacterial activity of *Acacia catechu* was studied against antibiotic resistant *Streptococcus mutans* isolated from dental caries. Isolation and identification of *Streptococcus mutans* was done by morphological, cultural characteristics and standard biochemical tests. Antibiotic susceptibility test of the clinical isolates was done by using modified Kirby-Bauer disc diffusion method in accordance with the guidelines of the clinical & laboratory standards institute. Interpretation of resistance was based on the NCCLS criteria. The antibacterial activity of aqueous and solvent plant extract was tested by agar well diffusion method. The most common pattern of multiple drug resistance of isolates of *Streptococcus mutans* observed was ciprofloxacin-rifamycin-ampicillin-penicillin-vancomycin-gentamycin. It was found that methanol extract of plant showed highest antibacterial activity against *Streptococcus mutans* followed by ethanol extract. The aqueous plant extract showed least antimicrobial activity. The antibacterial activity increases with the increase in concentration of plant extract.

Keywords: Antimicrobial activity, Agar well diffusion, Disc diffusion method, Multi- drug resistant, Plant extracts, *Streptococcus mutans*.

Butterfly Garden as conservation measure and learning resource- A case study

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Abstract:

Butterflies play an important role in the ecosystems well as pollinating agent of flowers. In present days, due to various anthropogenic activities population of butterflies is declining. This is an alarming situation for the nature and environment. Present study is focusing on the diversity of butterflies at Jaysingpur city and its outskirts. The project is also focused on observation and evaluation based study of lifecycle and conservation measures adapted by Jaysingpur College, Jaysingpur through development of Butterfly Garden in the college premises. Conservation of butterflies can be achieved by at various levels through public as well as participation of government organizations. Government is taking many steps towards conservation of all sort of flora and fauna, still, it is not possible until public participation. Participation of citizens, students, staff and management of school and college can also actively enhance the conservation drives. Conservation of butterflies through development of butterfly garden at individual house, Development of Butterfly gardens at school, colleges, institutes, private offices etc. may definitely increase the number of species as well as population of butterflies at our surroundings. It can be achieved by plantation of desired host and nectar plants. Furthermore, one should have a detailed knowledge regarding morphology, lifecycle, host and nectar plants of butterflies. During this study, a keen observation was carried out to evaluate a lifecycle of various butterflies at college Butterfly Garden and witnessed the successful conservation of butterflies. Finally, the present study concludes that the development of Butterfly Gardens from local to global level can successfully conserve butterflies. These butterfly Gardens at school, college and institute level can also serve as an effective learning resource for the students as well.

Keywords: Butterfly Diversity, Butterfly Garden, Conservation, Learning Resource

O- 18

STUDY OF PROTEINS AND ACTIVITY OF PROTEASES DURING EMBRYONIC DEVELOPMENT OF *CHILO PARTELLUS* (SWINHOE)

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Abstract

The electrophoretic protein pattern and proteases during embryogenesis of *Chilopartellus* have been studied. Gradual increase in number of protein fraction from 1 to 3 day eggs was observed. The number of protein fraction remained constant in 3 to 4 days eggs. Gradual decrease in number of protein fraction from 4-5 day eggs was observed and then it remained almost constant up to the 6 day eggs. The partial characterization of proteases (Acidic, neutral and alkaline) has been studied. Sharp increase in proteases activity from 1 to 2 day eggs and sharp decrease from 2 to 3 days was observed. After 3 day the enzyme activity was almost constant upto 6 day eggs. Maximum activity was observed in 2 day eggs. The physiological significance of protein and proteases during embryogenesis of *C. partellus* is dicussed.

Keywords: Electrophoresis, Protease, Embryogenesis, *Chilopartellus*.

O-19

**BIODIVERSITY OF PHYTOPLANKTON FROM BACK WATER OF
DHOM DAM, NEAR VELANG, WAI. (MAHARASHTRA)**

Manjusha Ingawale and Nishigandha Sanas

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Abstract

The present paper highlights the studies of phytoplankton diversity from back water of Dhom dam near Velang, Wai of Satara district (Maharashtra). Phytoplanktons are primary producers so, they have significant role in aquatic ecosystem. Analysis of water showed the abundance of phytoplankton. Total 25 genera and 90 species of Chlorophyceae, Euglenophyceae, Cyanophyceae and Bacillariophyceae have been reported. In them Bacillariophyceae shows dominance.

Key words – *Phytoplankton, Bacillariophyceae, Velang, Satara.*

Assessment of Threats to Anuran Fauna in and around Radhanagri

Wildlife Sanctuary, Kolhapur (MS), India

Neha R. Junghare, Madhavi B. Sapkal, AmrutR. Bhosale and Omkar V. Yadav

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Abstract

Amphibians are more susceptible to alterations in the environment, therefore might serve as 'harbinger' of environmental degradation. Anthropogenic interference, habitat loss, climate change, pollution and introduction of invasive species continue to threaten the wildlife. In the present study, we have assessed threats to anuran fauna in and around Radhanagri Wildlife sanctuary from June 2013 to December 2016. Many dead individuals of *Clinotarsus curtipes* were observed due to prolonged summer and unavailability of aquatic habitat for breeding in 2014. The effect of sudden increase in temperature was observed on *Raorchestes bombayensis*, and found that many of individuals were died due to impact of raised temperature. Mining sites are fragmenting the dense forest patches; this area is ideal habitat for threatened species like *Pseudophilautus amboli*, *Raorchestes bombayensis*, *Uperodon marmorata*. The noise generated by blasting and machinery is deleteriously affecting calls of many inhabiting anuran species.

Keywords: Anura, Radhanagari WLS, Threats,

SNAKE DIVERSITY IN WAI REGION OF MAHARASHTRA, INDIA

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Abstract: Wai Taluka of Satara District, Maharashtra has a good cover of forest with placeshabitats to support wildlife. Several groups of animals are recorded in this area and has always attracted students wildlife studies, amongst them snakes are definitely a focus of great fascination.

Snakes are widely distributed but rarely seen because of extensive hunting and destruction/modifications in their habitats. They are predominantly observed in the period between the pre-monsoon showers in May to the end of the monsoons in October.

Ecosystems support unique biological communities, high levels of species endemism and are important in the conservation of biodiversity. In the present work we have made and attempt to study the biodiversity of snakes of Wai region in relation to the present status of habitat supporting the life of Reptiles.

Key words: Snake, Wai, Biodiversity, Endemic

O - 22

Wound healing acceleration using curcumin and carbon nanodot incorporated nanofibrous PVA scaffold in mice model (*Mus musculus*).

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Abstract

Wound healing is a complex process in which the skin and tissue under it repair themselves after injury. Curcumin is active component of Turmeric and has possess antimicrobial, anti-inflammatory, antioxidant and wound healing activities. The present study suggests that the combination of Curcumin and PVA scaffold possess better wound healing activity than alone Curcumin.

Keywords –Wound healing, Mice, Curcumin, PVA.

**POSTER
PRESENTATION**

ALLELOPATHIC EFFECT OF TWO COMMON WEEDS ON SEED GERMINATION, ROOT-SHOOT LENGTH AND BIOMASS CONTENT OF WHEAT.

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Abstract

The present study reveals that the allelopathic potential of two most common weeds viz. *Amaranthus viridis*, *Argemone mexicana*. The aqueous leaf extracts (25, 50, 75 & 100% concentration) of above weeds are examined for seed germination, root-shoot length and biomass content of wheat. The drastic change occurs in seed germination. After 72 hours of germination, 75% concentration of both weed extracts causes 100% germination. 25 and 50% concentrations of *Amaranthus viridis* and *Argemone mexicana* extracts shows maximum root-shoot length and negative trend occurs in 75 and 100% concentration. The lower concentration showed increase in biomass while higher concentration showed less increase indicating the positive allelopathic effect.

Key words: *Amaranthus viridis*, *Argemone mexicana*, allelopathy, *Triticum aestivum*, germination, root-shoot length, biomass.

Pollinator responses to floral colour change in *Quisqualis indica*

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Abstract

For pollination flowers have variety of colours to attract insects. Floral colour change is visual signal for pollinators to avoid old flowers and increase pollination efficiency. *Quisqualis indica* flowers change colour from white to pink to red may be associated with a shift from moth to butterfly pollination. To test this hypothesis, we investigated *Q. indica* populations in Botanical garden of Kisan Veer Mahavidyalaya, Wai. Flowers secreted nectar continuously from the evening i.e. anthesis period until the subsequent morning, then decreased gradually with floral colour change. The scent emission decreased from the white to red stage.

Dichogamy in *Q. indica* prevents self-pollination which needs pollinators to promote cross pollination leading to quality seed production. Different pollinators were attracted in each floral colour stage; mainly moths at night and bees and butterflies during the day. Observations of open-pollinated inflorescences showed that white flowers had a higher fruit set than pink or red flowers because of higher nectar and scent secretion, indicating the high contribution of moths to reproductive success. We concluded that the nectar and scent secretion are related to floral colour change in *Q. indica*, in order to attract different pollinators and promote reproductive fitness.

Key Words- *Quisqualis indica*, Floral colour change, pollinators

P- 3

**DIVERSITY OF FREE-LIVING FRESHWATER CILIATE PROTOZOANS FROM
SANGLI, WESTERN MAHARASHTRA.**

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Abstract

In present investigation, freshwater Free-living ciliates were studied from the freshwater bodies in and around Sangli. The samples were collected & brought to laboratory. The observations were made under low and high magnification. Seventeen species of free living fresh water ciliates were recorded.

Key words: Protozoans, freshwater Ciliates.

INVITRO ANTIOXIDENT POTENTIAL OF POMEGRANATE JUICE

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Abstract

Punica granatum L. (Pomegranate) is a deciduous shrub, small tree growing between 5-8m tall. It is belonging to Punicaceae and Lythraceae family. Pomegranate is gaining tremendous importance in Ayurveda from ancient times. It has been used in treatment of various health issues like inflammation, dysentery, cancer, diabetes. The aim of present study was to evaluate the antioxidant activity of Pomegranate fresh juice by using three different methods (DPPH, DMSO, and NO). The antioxidant study has shown that Pomegranate juice has good free radical scavenging activity by DPPH and NO methods and it has moderate free radical scavenging activity by DMSO method as compared to the standard Ascorbic acid. Thus, the results from antioxidant studies have shown that Pomegranate juice is a very good source of antioxidants, which may be used in Pharmaceuticals for developing new medicines. The richness of Pomegranate juice with antioxidants might encourage for the development of antioxidant function dietary food.

Keywords: - Pomegranate juice, Antioxidants, Punicaceae, *Punica granatum*, free radicals.

SIALOADENECTOMY EFFECT ON PERIPHERAL CD3, CD4 AND CD8 CELLS IN BLOOD OF MALE MICE (*MUS MUSCULUS* LINN.)

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Abstract

The extraordinary sequential process of T cell development and maturation is hallmark of well-functioning of thymus gland. An earlier study clarifies the relationship between salivary glands and other organs including thymus. To define the precise role of submandibular gland secreted growth factors on the development, differentiation & maturation of thymocytes especially CD4 and CD8, we have sialoadenectomised (removed submandibular gland) the male albino mice. The mice were operated for sialoadenectomy at the age of 20th day and maintained under normal conditions in the animal house along with control, up to the age of ten weeks. Then blood samples were collected and peripheral T cell subsets was analysed with FACSCalibur flow cytometer with BD Tritest CD4FITC/CD8PE/CD3 PerCP reagent. Here it was observed that in absence of submandibular gland secreted growth factors especially EGF, the mature naïve T cells output get disturbed and there was significant reduction in CD4 absolute and % count and CD4:CD8 ratio.

Key words: CD3, CD4 and CD8 thymocytes, Flow cytometry, Sialoadenectomy

**ZOOPLANKTON DIVERSITY IN SOME FRESHWATER BODIES AROUND WAI
TEHSIL, DIST-SATARA (M.S.) INDIA.**

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Abstract

In aquatic ecosystem, Zooplankton plays an important role. The present study deals with the diversity of zooplankton of some freshwater bodies from Wai tehsil, Dist- Satara. This work is carried out in the month of January, 2020. The most common types of zooplankton found in freshwater bodies are Rotifers, Cladocerons and Copepods.

Keywords: – Zooplankton, Wai tehsil, freshwater bodies.

P- 7

STUDIES OF THE PHYSICO-CHEMICAL PARAMETERS OF SOIL SAMPLES OF HILLY AREA OF PATAN TEHSIL SATARA DISTRICT M.S. (INDIA)

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Abstract

Hilly area in the Patan Tehsil, District Satara is located in the Western Ghats. The study area is surrounded by forest and paddy fields. The soil is the most important constituent which fulfills all the basic needs of human beings. Soil is an essential component to flourish plant growth. Thus the physico-chemical study of territory is very significant because both physical and chemical properties are responsible for soil productivity. In the present investigation the physicochemical study of soil is based on various parameters like pH, moisture, density, porosity, texture, water holding capacity, organic matter, chloride, ammonia, nitrite, phosphorus. This knowledge provides baseline information about quality status of soil for proper implementation of the other management practices.

Keywords: Soil composition, physico-chemical parameters, quality status.

**STUDY OF PHYSICOCHEMICAL PARAMETERS OF UTTERMAND RESERVOIR IN
PATAN TAHSIL, DISTRICT SATARA (M. S.) INDIA**

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Abstract

Water quality profile based on physicochemical parameters is short and easy approach to assess present status of any water body. Reservoirs have social and economic importance for humans, as they bring industrial, agricultural and urban development, contributing with hydroelectricity and supplying water for human consumption and irrigation. Uttermand is a medium irrigation project constructed across the river Uttermand, a tributary of Krishna river in Patan Tahsil of Satara district in Maharashtra. Various anthropogenic activities adversely affect physicochemical parameters of the water. Thus, water quality assessment from selected sampling stations of the reservoir was carried out from January, 2019 to December, 2019. The water quality parameters analyzed includes temperature, pH, turbidity, total dissolve solid (TDS), total hardness, alkalinity, chlorides, free CO₂, dissolved oxygen, BOD, phosphate and nitrate. Variation in physicochemical parameter was observed which gives baseline information in water quality monitoring strategies.

Key words – Uttermand Reservoir, physicochemical parameters, anthropogenic activities, water quality monitoring.

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SURVEY OF DRAGON FLIES FROM SANGLI, WESTERN MAHARASHTRA

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Abstract

In present investigation, the survey of dragon flies was carried out for six months around sangli. The species were collected and identified by consulting standard literature. Twelve species of Dragon flies belonging to two families were recorded from the study area. The members of the family Libellulidae are showing dominance.

Key words: Dragon flies, Libellulidae, sangli.

Survey of health status, Student of college girls during Menstruation Phase of Rajarshi Chh. Shahu College, Kolhapur.

R.S Dubal, G.R. Katkar, U.C. Yadav and S.A. Jadhav

ABSTRACT

Total 120 college girl students were assessed for health status during Menstruation Phase of menstrual cycle in during December 2019 by questionnaire. Physical characteristics viz. height, weight, age etc. Hemoglobin level dietary habits and their problems concerned with menstruation phase studied, from age group between 16 years to 21 years.

Hemoglobin level of girl students during menstruation phase ranges from 7gm/dl to 14 gm/dl. Questionnaire survey reveals that menstruation phase fluctuates between three days to eight days. The duration correlates with age of the students. Pelvic pains predominately observed among 86 girls followed by reduced bleeding by 52 girls, over bleeding among 39 girl students and white discharge compliant by 35 girl's students. All students reported that weakness, body pains as well as back pain. It has been recommended that student complaining white discharge have to complete quantitative analysis of female hormones.

Key words: Hemoglobin, Height, Weight, Menstruation phase

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**STUDY OF THE PHYSICO-CHEMICAL PARAMETERS OF SOIL SAMPLES OF HILLY
AREA OF PATAN TEHSIL SATARA DISTRICT M.S. (INDIA)**

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Abstract

Hilly area in the Patan Tehsil District Satara is located in the Western Ghats. The study area is surrounded by forest and paddy fields. The soil is the most important constituent which fulfills all the basic needs of human beings. Soil is an essential component to flourish plant growth. Thus the physico-chemical study of territory is very significant because both physical and chemical properties are responsible for soil productivity. In the present investigation the physicochemical study of soil is based on various parameters like pH, moisture, density, texture, water holding capacity, organic matter, chloride, nitrate, phosphorus. This knowledge provides baseline information about quality status of soil for proper implementation of the other management practices.

Keywords: Soil composition, physico-chemical parameters, quality status.

Study of Diversity of Zooplanktons from Kalamba Lake, Kolhapur

Rajarshi Chh. Shahu College, Kolhapur.

G.R. Katkar, S.S. Injal and O.R. Gangdhar

ABSTRACT

Zooplankton study were carried during the month of August to September 2019 Kalamba lake, Kolhapur, India. Total 10 species of zooplanktons were recorded during the study period. Qualitative and quantitative abundance of plankton in a water body are of great importance for sustainable management policies as they vary from location to location and aquatic systems within the same location were studied. Seasonal changes in the pattern of zooplankton community have been driven by a combination of biotic and abiotic factors.

The plankton samples were collected by filtering 50 liters of water through standard plankton net and the samples were fixed in 5% formalin. Identification of zooplanktons were carried out by standard key up to classes.

Key words: Zooplankton Diversity, Kalambalake

DIVERSITY OF FRESHWATER CILIATES (HOLOTRICHA) FROM THE WATER BODIES IN BOPARDI NEAR WAI, DIST SATARA, MAHARASHTRA

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ABSTRACT

Bopardi is a small village near Wai situated near MIDC about 4 km away from Wai, Dist. Satara of Maharashtra. Seasonal water bodies around temple of Shiva get filled with rain water and some ground water which remains in the tank more than half a year. The sample water from these water bodies was brought to laboratory and was kept under observation under microscope for the occurrence of holotricha ciliates. The total number of holotrich ciliates found was 11. The sample was observed frequently from the month of June to the month of November.

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

**STUDY OF LEPIDOPTERAN (BUTTERFLY) DIVERSITY FROM PARTS OF
NORTHERN WESTERN GHATS**

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Abstract

Lepidoptera are one of the fundamental part of the forest and grass land ecosystems. They are highly sensitive to the changes in season, habitat, environmental conditions and climatic changes and hence considered as bio-indicator of environmental quality and ecosystem health. The present investigation deals with the study of Lepidopteran diversity from the selected parts of Northern Western Ghats which is a UNESCO world heritage site and one of the rich hot spot of biological diversity in the world.

During the study period of one year i.e. from March 2018 to April 2019, the study areas were visited twice in the month in each season *viz.*, Monsoon, Winter & Summer. As a result of the present study, we recorded total 61 species from 5 different families of order Lepidoptera *viz.*, Nymphalidae (27), Pieridae (12), Lycaenidae (11), Hesperidae (6), and Papilionidae (6). During the study period it was also observed that, 53 species were common and 8 species were rare in the selected study area.

P-15

ANTIHYPERGLYCEMIC ACTIVITY OF *Mangifera indica* L. PLANT ETHANOLIC EXTRACT ON ALLOXAN INDUCED DIABETIC ADULT AND AGED MICE

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ABSTRACT

India presently has the largest number of diabetic patients in the world and has been infamously known as the diabetic capital of the world. The current epidemic of diabetes indicates the need of proper and effective medications that are limited in their potency to have many side effects. Thus, introduction of alternative and complementary medicine is now in picture. This study was undertaken to investigate *Mangifera indica* L. plant extract for its potential to reduce the blood glucose level of Alloxan induced diabetic adult and aged mice. The *Mangifera indica* L. plant extract was administered orally at a dose of 200mg/ml for 21 days in diabetic adult and aged mice. After the treatment of the ethanol extract of *Mangifera indica* L, showed significant activity on increase in a dose dependent manner. The ethanol extract of *Mangifera indica* L, can serve as a therapeutic agent and can be used as potential source of novel bioactive compounds for treating type 2 diabetes mellitus.

Keywords:- Antihyperglycemic activity, *Mangifera indica* L, Alloxan, diabetes, blood glucose