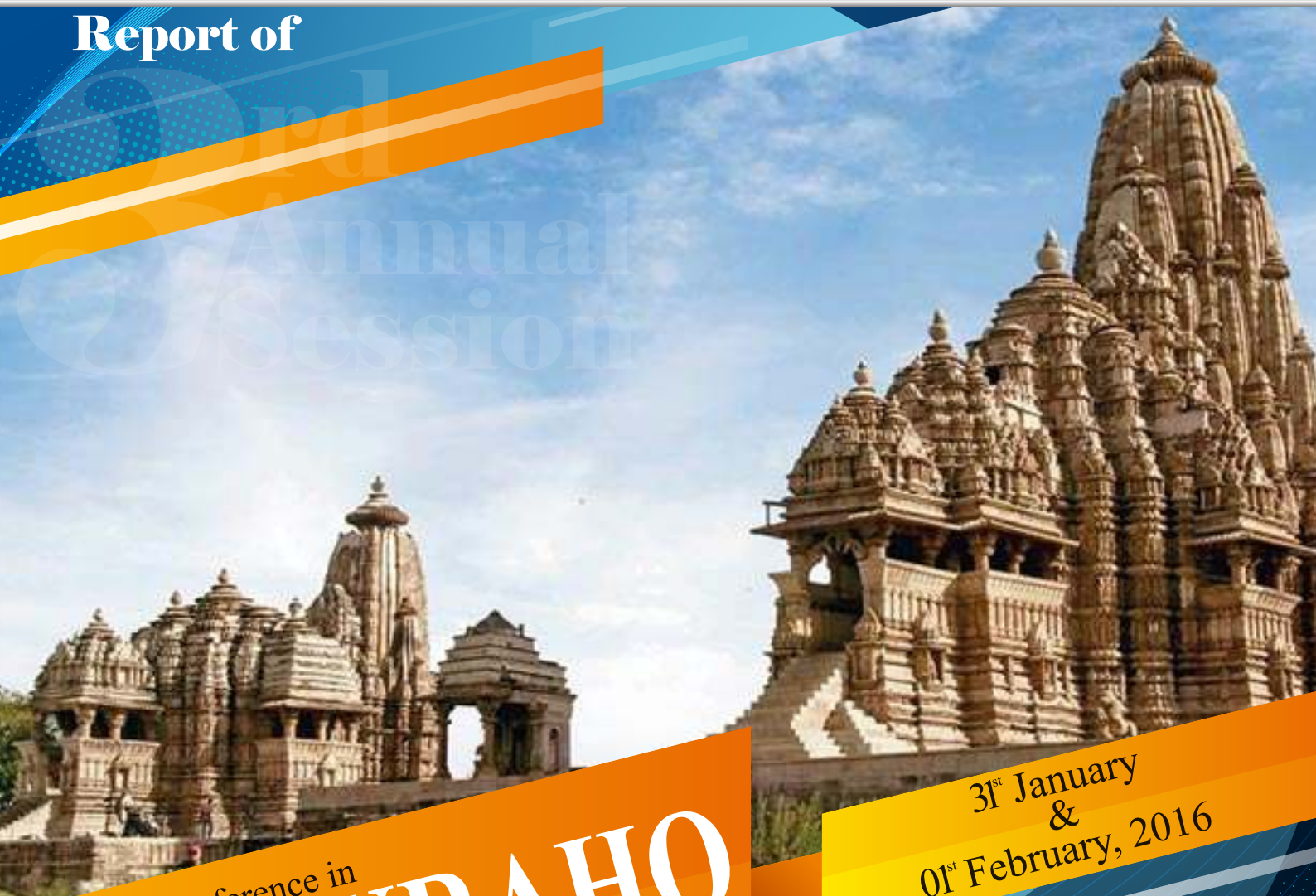
# SLS Newsletter

(e-newsletter of The Society of Life Sciences)

Volume - 6 Number - (1&2) Year - 2016


The e-news letter published by the Society of Life Sciences. Through this official publication, the activities of society and achievements of its members are highlighted. For research paper/review, the Society of Life Sciences publishes a regular Peer Reviwed Biannual Journals.....***National Journal of Life Sciences and Life Science Bulletin.***

## Report of



# National Conference in KHAJURAHO World Heritage.....

31st January & 01st February, 2016

Focused on


**Dr. Rashmi Singh**
Editor-in-Chief

**Dr. Ashwani Kumar Dubey**
Executive Editor of this Edition

**Dr. Pragya Khanna**
Managing Editor


## Reports of Society of Life Sciences (Events & Activities)

SLS Annual Session in
KHAJURAHO

Reports of Society of Life Sciences (Events & Activities)

Volume - 6 Number - (1&2) Year - 2016

**Khajuraho 31 Jan. 2016**

Environment & Social Welfare Society Khajuraho (M.P.) organized National Conference on "Strategy for Human Welfare on Nature conservation and Resource Management" and 3rd Annual Session of the Society of Life Sciences" on 31st January & 01st February, 2016. The National Conference was sponsored by M.P Council of Science & Technology, Govt. of Madhya Pradesh and supported by The National Academy of Sciences (NASI-BER Chapter), Society of Life Sciences and Godavari Academy of Science and Technology, Chhatarpur (M.P.).

## In the conference more than 180 PARTICIPANTS

participated from various scientific organizations and Universities.

The event of the 3rd SLS Annual session and National Conference was inaugurated on 31st January, 2016bythe Chief Guest, Prof. N.C. Gautam, Vice-chancellor, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot (M.P.).He emphasized that study of Environment conservation and Biodiversity is a need of the hour to practice from grass root level and must be introduced with the latest technology.

The Key note speaker, Prof. K. K. Sharma, Former Vice Chancellor, MDS University Ajmer (Rajasthan) delivered the Keynote address on "Bioacoustic based sensors can effectively reduce man-wild life conflict". Guest of Honour on the occasion was Prof. Kubaer Ram Mourya, Former Vice Chancellor Rajendra Agricultural University, Pusa (Bihar). He said that the enhancement of food processing is necessary for proper food supply and there was a need to develop basic infrastructure and technique for grain and food storage for future. Dr. Kunal Kumar Das, Scientist (Retd.), IIRS, Indian Space Research Organization Dehradun, Uttrakhand, focused on regular monitoring of environment by remote sensing and GPS technique for nature and resource management. Dr. Ashwani Kumar Dubey, Executive Director ESW Society, Khajuraho focused his attention on wildlife conservation to maintain food chain and ecosystem for our safe Environment. Prof. Shivesh Pratap Singh, Secretary, BER Chapter, The National Academy of Sciences India, Allahabad & Society of Life Sciences proposed the vote of thanks.

During inaugural function, Dr. Karuna S. Perdeshi, Abasaheb Garware College, Pune was awarded the SLS Eminent Scientist Award 2016 in recognition of her outstanding academic contribution in the field of Parasitology.Whereas SLS fellowship awards were presented to Dr. M.K. Nayak (Tikamgarh), Dr. Pushpa Singh (Maihar), Dr. Rajesh (Pantnagar), Dr. A.K. Srivastava (Tikamgarh), Dr. Danish (Pantnagar) and Dr. Raj Bhan Sahu (Satna).

Volume - 6 Number - (1&2) Year - 2016

The general topics on Nature Conservation, Resource Management, Technological Approach were covered in the five technical sessions of this two days National Conference. To conserve, promote and develop the Indian's culture, Environment and Social Welfare Society, Khajuraho arranged a cultural event on 31st January followed by dinner.

Prof. K.K. Sharma, Former Vice Chancellor, Maharishi Dayanand Saraswati University, Ajmer, Rajasthan was the Chief Guest, Dr. A.K.Pandey, Principal Scientist, National Bureau of Fish Genetic Resources, Lucknow was the Special Guest and Dr. Kunal Kumar Das, Scientist (Retd.), IIRS, Indian Space Research Organization Dehradun, Uttrakhand presided over the Valedictory and the award ceremony of the National conference. Many Fellow members / Life Members of Environment & Social Welfare Society Khajuraho (M.P.) and Society of Life Sciences, Satna and other distinguished guests participated from various parts of India.

Certificates of paper presentation and participations were given by the Chief Guest and vote of thanks by Dr. Prahlad Dubey (Kota).

Best Paper Oral Presentation Award in each Session were awarded to Dr. Jitendra Kumar, Fisheries College, Manglore; Dr. Sanofer Khokhar, Fisheries Research Station, Junagarh, OkhaPort (Gujarat); Dr. Mohammad Danish,G.B. Pant University of Agri. & Tech. Pantnagar and Dr. Dipali Jat from Dr. Harisingh Gour University, Sagar(M.P).

Best Poster Presentation Award was presented to Dr. Aditya Narayan, Bundelkhand University, Jhansi (U.P.) and Dr. Meenakshi Sharma, CP University, Kota (Rajasthan).


## RECOMMENDATIONS of National Conference

- Bioacoustics based sensors can effectively reduce man wildlife conflict.
- Need to study of Environment conservation and Biodiversity on practical level and mustbe introduced with the latest technology.
- Food processing sector in India needs more attention.
- Enhancement of food processing is necessary for proper food supply and need to develop basic infrastructure and technique for grain and food storage for future.
- Regular monitoring of environment is required by remote sensing and GPS technique for nature and resource management.
- Attention on wildlife conservation to maintain food chain and ecosystem for our safe Environment. Plantation may be safe guarded instead of wire boundary in Nationalpark and sanctuary.
- Need to revise its current approach by adopting the ecological methods and innovative techniques of waste management.
- Evidences indicate that research is needed to improve the quality and quantity of compost as well as its efficient management.
- Biological process controlled nutrient cycling influence many other aspects of soil fertility.
- Knowledge of these processes helps farmers to make informed management decision about their crops, how these decision affect soil biology especially root growth and organicmatters are key factors in efficient nutrient management.
- It requires training to the farmers in proper crop selection and farming practices and also the strict monitoring by the agriculture ministry.
- Species conservation must be the prime target for eco-balance and global health.
- Much Attention must be given on challenges at national level viz. Malnutrion, Poverty and environmental degradation.

Volume - 6 Number - (1&2) Year - 2016

## Scientists / Professors confirmed for The Society of Life Sciences Awards 2016

| | | |
|---|---|---|
| **Dr. Karuna S. Perdeshi** | Associate Professor, Dept. of Zoology, AbasahebGarware College, Pune (M.S.) | SLS Eminent Scientist Award in the field of Parasitology |
| **Dr. G. K. Sahu** | Medical Biotechnolgy Division, Dept. of Biochemistry, Pt. J.N.M Medical College Raipur (C.G.) | SLS Eminent Scientist Award in the field of Biochemistry |
| **Dr. M.K. Nayak** | Scientist, JNKVV, College of Agriculture, Tikamgarh (M.P.) | SLS Fellowship Award |
| **Dr. Pushpa Singh** | Dept. of Zoology, Govt. Vivekanand P.G. College Maihar Dist. Satna (M.P.) | SLS Fellowship Award |
| **Dr. Rajesh** | Assistant Professor, Dept. of Aquaculture, College of Fisheries, G.B. Pant University of Agri. & Tech. Pantnagar (Uttarakand) | SLS Fellowship Award |
| **Dr. A.K. Srivastava** | Scientist, JNKVV, College of Agriculture, Tikamgarh (M.S.) | SLS Fellowship Award |
| **Dr. Danish** | Dept. of Aquaculture, College of Fisheries, G.B. Pant University of Agri. & Tech. Pantnagar (Uttarakand) | SLS Fellowship Award |
| **Dr. Raj Bhan Sahu** | Dept. of Zoology, Govt. Autonomous P.G. College Satna (M.P.) | SLS Fellowship Award |


Reports of Society of Life Sciences (Events & Activities)

Volume - 6 Number - (1&2) Year - 2016

# Award Ceremony of 3rd Annual Session of SLS


Dr. Karuna Pardeshi, Pune


Dr. M.K. Nayak, Tikamgarh


Dr. A.K. Srivastava, Tikamgarh


Dr. Rajesh, Pantnagar


Dr. Raj Bhan Sahu, Satna


Dr. Danish, Pantnagar


Dr. Pushpa Singh, Maihar (Satna)


Group Photosession

Papular Article
Reports of Society of Life Sciences (Events & Activities)
Volume - 6 Number - (1&2) Year - 2016

# GENESIS OF ETHNOBOTANY IN INDIA A GLIMPSE

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**Introduction**

Plants have always played and continue to play a vital role in the life and culture of human beings since antiquity. Perhaps it was only the plant kingdom with which primitive man had established his first relationship for his basic needs as food, shelter and clothing etc. The science of Ethnobotany therefore had its origins during the early period of human history but Ethnobotany as a modern discipline is said to have emerged only during the later part of 19th century.

The term 'Ethnobotany' was first coined by Dr. J.W. Harshberger on 4th Dec. 1895, at a lecture in Philadelphia, to describe his field of inquiry, which he defined as the study of "plants used by primitive and aboriginal people." In 1896, Harshberger published the term and suggested "ethnobotany" be a field which elucidates the "cultural position of the tribes who used the plants for food, shelter or clothing".

Ethnobotany has been defined as the study of the past and present interrelations of primitive or aboriginal human societies with the ambient vegetation. Some definitions given by authors as:

Jones (1941) defined it as "The study of interrelationship of primitive men and plants".

- Faulks (1958) "The total relationship between men and vegetation".
- Schultes (1962) "The study of relationship which exists between people of primitive society and their plant environment".
- Ford (1978) "Ethnobotany is concerned with a wide range of interest of plants in cultural and ecological context".
- Martin (1995) "Ethnobotany is the part of ethnoecology which concerns plants".
- Cotton (1996) "Ethnobotany is considered to encompass all studies which concern the mutual relationship between plants and traditional peoples".
- Jain (2019) Study of traditional and indigenous knowledge about man plant relationships which exist since birth of man on this earth.

Ethnobotany is multidisciplinary science mainly studied by botanists, anthropologists, linguists, phytochemists, pharmacologists, pharmacognosits, archaeologists, psychologists, and even paleobotanists. In case of interdisciplinary study of ethnobotany, there are always more than one subject involved, extends beyond ordinary realm of botany and has significance input of another branch of science, like Archaeology, Ethnopharmacology, Ethnomedicine, Ethnogynaecology, Ethnopaediatrics, Ethno-agricultue, Ethnobiology, Ethnotoxicology, Ethnonarcotics, Ethnoorthopedics, Ethno-ophthalmology, Ethnohoriticulture, Ethnolimguistics, Ethnocosmetics, Archaeoethnobotany, Ethnomusicology etc. Ethnopharmacology is interdisciplinary between two subjects, ethnology and pharmacology, Archaeoethnobotany involves three subject, ethnology, archaeology and botany.

In subdisciplines of ethnobotany, the main subject is botany. Subdisciplines of Ethnobotany includes ethnobotanical work of subgroups of plant kingdom, like fungi, bryophytes, pteridophytes, lichens etc are subdisciplines and have been named as Ethnoalgology, Ethnomycology, Ethnobryology, Ethnopteridology, Ethnolichenology etc. Studies on special aspects of botany, like system of classification, medicinal uses, palaeobotany, ecology, etymology etc are also subdisciplines have been termed as Ethnotaxonomy, Ethnomedicobotany, Palaeoethnobotany, Ethnoecolog (Jain 1889).

Scope of Ethnobotany:

Ethnobotany is a multidisciplinary science and its scope is not confined to one area but it covers a broad range of study areas, which are interconnected to each other in one sense or the other. So, there is a great opportunity to explore the ethnobotanical approach towards the modern civilization and giving them a firm task, which should include:

- Conservation of plant species- including varieties of crops and other forms of biological diversity.
- Botanical inventories and assessment of the conservation status of the species.
- Sustainability in supplies of wild plant resources.
- Enhanced food security, nutrition and healthcare.
- Preservation, recovery and diffusion of local botanical knowledge and wisdom.
- Reinforcement of ethnic and national identity.
- Identification and development of new economic products from plants, for instance food, crafts, herbal formulations, horticultural plants, etc.
- Drug discoveries from plant sources.
- New product Development.
- Discovery of new sources of food plants.
- Less known or unknown uses of 9500 plants.
- Provides information regarding the traditional uses of plant wealth which can be utilized as direct reference of research.
- Conservation of forests and plants through faith, beliefs and taboos.
- Conservation of traditional crop varieties and wild relatives.
- Tribal artifacts.
- Cross cultural and comparative ethnobotanical study.
- Documentation of age-old traditional knowledge.

Papular Article
GENESIS OF ETHNOBOTANY IN INDIA: A GLIMPSE
Volume - 6 Number - (1&2) Year - 2016

The scope of ethnobotany in drug research needs no elaboration. Some ethno medicines are now in main stream and used for medicare programme. Discovery of medicinal properties of certain plants, like Artimisnine drug is obtained from Artimisia annua and has antimalarial properties. Similarly, Reserpine is obtained from Rauvolfia serpentine (hypotensive, tranquilizer), Caffeine from Camellia sinensis (male contraceptive), Quinine from Cinchona officinalis (antineoplastic), Vincristine from Catharanthes roseus (antineoplastic). Recently 'Jeevaniya' from Trichopus zeylanicus is discovered in Thiruvananthpuram district of Kerala, by the JNTBGRI with the help of 'Kani' tribals of Agasthyar mount, which has been reported to possess rejuvenative, immuno enhancing, antistress and antifatigue properties.

Ethnobotany in India:

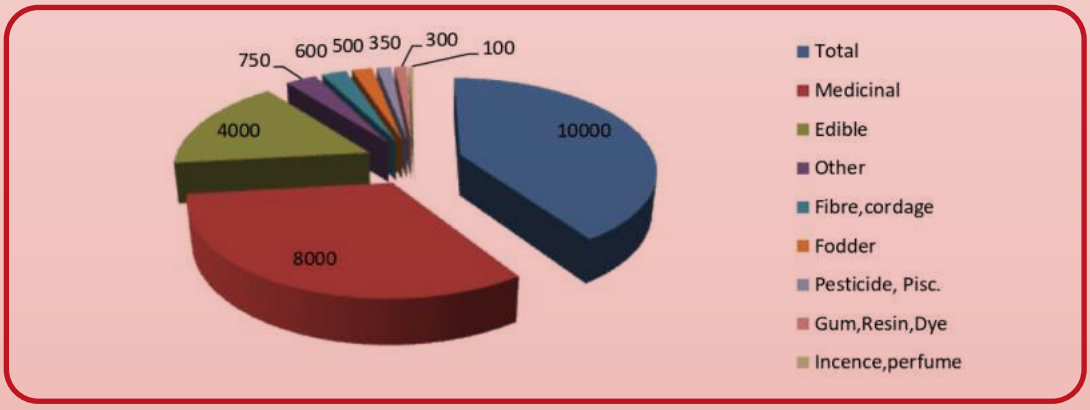
India has all the three elements that contribute to ethnobotanical richness of an area: these are floristic diversity, ethnic diversity and rich culture diversity. In India there are about 705 tribal communities of 227 ethnic groups as per the classification made by anthropologists on linguistic basis. Their population in India is 84.3 million constituting 8.2% of the total population (2011) census. They mainly inhabitabout 5000 forested villages or lead a nomadic life in the forest (Pushpangadan & Pradeep, 2008).

Vast ethnobotanical knowledge exists in India from ancient time in Vedas and Samhitas. Work of Chrak, Susruta and Dhanwantari's attracted serious attention of people in India even during the early centuries. Cattle grazers, shepherds and forest dwellers have the deep knowledge of medicinal plants of the forest and identify them by name, morphology and properties. The Ayurveda students should learn the name, property and morphological characters of medicinal plants from these people with deep interaction. Although the concept and definition of the science of Ethnobotany was cleared respectively by Powers (1874) and Harshberger (1895), the elements of this science appeared in India even before. Garcia da Orta (1563) published a book 'Coloquios dos simples' e drogas medicinas da India'. Acosta (1578) also published a book 'Tractado de las drogas y medicinas de las Indias Orientalis' on Indian medicinal plants from Malabar. Van Reede, the compiler of 'Hortus Malabricus' (1678-1693) gave an excellent and accurate introduction of Malabar, its people and their costoms, specially the virtues of the medicinal plants. Sir George Watt published 'Dictionary of the Economic Products of India' (1889-1896). In this Dictionary he provided nearly 3000 local names of the plant products and their uses as obtained from various regions of India.

Padmashri Dr. E.K. Janaki Ammal (1956), as an official programme in the Economic Botany Section of Botanical Survey of India, lit the lamp of 'Scientific Indian Ethnobotany' by creating an 'Ethnobotanical Section' at the Cetral Botanical Laboratary, B.S.I. Allahabad. She did loud think and a wish in her publications, which has been fulfilled later by Dr. S.K. Jain. Besides the books, since begining from 1963 to tilldate Dr. Jain has published more than 400 research papers on different aspects on Ethnobotany and Folklore medicine in India. Dr. S.K. Jain deserves to be called as the "Father of Indian Ethnobotany".

In the early 1980's the Department of Environment and Forest, Government of India funded an All-India Coordinated Research Project on Ethnobiology. This work triggered the ethnobotanical study in India and work was carried out in over a dozen institutions under the Botanical Survey of India (BSI), Council of Scientific and Industrial Research (CSIR), some universities and other laboratories of India. A large area was covered in a quick survey and significant ethnobotanical data were recorded.

Over 10000 wild plant species used by tribals for meeting their varied requirements have been recorded so far. Out of 8,000 wild plant species used by tribals for medicinal purposes, about 2000 are found to be new claims and worthy of scientific scrutiny. Out of 4000 or wilder plant species used as edibles by tribals, about 800 are new information and at least 250 of them are worthy of attention to be developed as alternative source of food that the world would need in the future. Similarly, out of over 600 wild plant species used by tribals for making fibre for cordage, 80 are promising for commercial exploitation. Out of 500 plant species used as fodder, 100 are worth recommending for wider use and out of the 325 wild plant species used by tribals as piscicides and pesticides; at least 180 are quite promising to be developed as safe biopesticides. Almost all the plants used as gum, resin, dye, incence and perfumes are worth investigating since there is a revived interest the world over for natural sources of these products (Pushpangadan & Pradeep, 2008).




The Society of Ethnobotanist (SEB) was established in 1980 and it brings out a journal on ethnobotany called 'Ethnobotany' in 1989, which is the only journal on ethnobotany in India.The society also conducts training programme in ethnobotany in well-designed manner to make understand the scope and concept of ethnobotany for young researchers in the field of ethnobotany. Sofar, 8 training courses have been organized by the society.

More than 3000 research papers on different aspects of ethnobotany have been published sofar in aforesaid Indian as well as foreign journals. There are more than 300 Doctoral thesises (Ph.D.) were published from different Universities and Instituttions based on ethnobotancal field work in different ethnobotanical aspects of varoius tribal communities across India. All funding agencies of Central Government like CSIR, ICFRE, DST, DBT, ICAR, ICMR, ICAR, UGC etc. funded and funding projects for ethnobotanical work. States funding agencies like SSB, SMPB, State Councils of Science & Technology also funding the projects. Thousands of seminars, conferences, seminars, symposia, workshops, training courses have also been organized.

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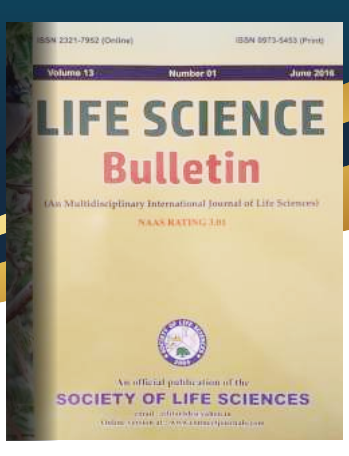


# LIFE SCIENCE BULLETIN

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CONTENTS


### PLANT SCIENCE

1. **Priyadarshan, K. Tapass, B. V. S. Anuradha and A. K. Panigrahi** 01-05
Bioconcentration of mercury in contaminated fishes collected from Rushikulya estuary and impact of mercury on the respiratory activity of the fishes.

2. **K. B. Tharini, V. V. Belavadi and H. Khader Khan** 07-11
Flower visitors in bitter gourd ecosystem : Abundance and diversity.

3. **A. H. Kumar Naik, T. Rudramuni and D. Chandrappa** 13-16
Impact analysis of front line demonstration on the yield and economics of Safflower (*Carthamus tinctorius* L.).

4. **Vinay Kumar, Gynendra Kumar Singh, S. S. Kaushik and Gopi Chand Singh** 17-20
Effect of nutrient management and spacing on production soil health and uptake of nutrients on Cauliflower (*Brassica oleracia* L. var. *Botrytis*).

5. **Vinay Kumar, Gynendra Kumar Singh, S. S. Kaushik and Gopi Chand Singh** 21-23
Effect of integrated nutrient management and spacing on production and economics of Cauliflower in Bundelkhand region.

6. **Chanchala Shiv, R. K. Shrivastava and K. K. Dube** 25-28
Preliminary studies on physico-chemical parameters of river Temar, district Jabalpur (M.P.)

7. **V. Ramya and N. K. Jain** 29-32
Methods to increase the rate of mass transfer during osmotic dehydration of fruits and vegetables.

8. **Rajiv Dubey** 33-34
Response of improved production technologies on productivity of tomato under farmers field situations.

9. **Mohammad Salim, Mohammad Shahid Masoor and Shagufta Parween** 35-36
Evaluation of water content in fungal spores.

10. **Mohammad Shahid Masroor, Shagufta Parween and Mohammad Salim** 37-40
Studies on uses and abuses of Caffeine.

### ANIMAL SCIENCE

11. **P. J. Mahida, S. I. Yusufzai, S. R. Lende, S. S. Rathore and M. H. Parmar** 41-44
Effects of different levels of squid waste meal as substitute for fish meal on the growth of the pacific white shrimp (*Litopenaeus vannamei*) post larvae.

12. **R. B. Suryawanshi and A. T. Kalse** 45-48
Reporting a new species of the genus *Avitellina* from *Capra hircus* at Dhule (M.S.).

13. **S. N. Pokale** 49-50
Assessment of physico-chemical parameters from Hanga lake Parner tehsil, district Ahmednagar (M.S.).

14. **Meenu Sadhotra** 51-52
A study of somatic and meiotic chromosomes of *Papilio demoleus* Linn.

15. **Pawan Maheshwari, P. C. Shukla, Jyoti Dongre and Jitendra Shivhare** 53-55
Identification and antibiotic sensitivity of *Staphylococcus* spp. in sub-clinical mastitis in cattle.

16. **D. P. Rajesh, A. S. Mahesha Murthy, H. N. Anjanayappa, S. Benakappa, Naveen Kumar, B. T. and A. S. Kumar Naik** 57-59
Length-weight relationship and relative condition factor of *Cociella crocodila* (Tilesius,1812) from Mangalore coast.

17. **Narendra Kumar Verma, A. D. Upadhyat, A. K. Roy and Sanjeev Kumar** 61-64
Trend of fish seed, fish production and their interrelationship in Uttar Pradesh.

18. **B. S. Chandel and Arti Singh** 65-68
Repellent biopotency of *Cichorium intybus*, *Inula racemosa*, *Tagetes minuta* and *Mantisalca duriaeri* aquash formulations against pulse beetle, *Callosobruchus chinensis* Linn. (Coleoptera : Bruchidae).

19. **H. N. Singh** 69-72
Studies on the morphological details of *Lipaphis erysimi* (Kaltenbach) infesting *Brassica compestris* var. sarson of Gaya district (Bihar).

20. **A. H. Kumar Naik, D. Chandrappa and G. Hanumantha Naik** 73-77
Use of mobile phone based agro-advisories on knowledge of castor farmers.

21. **Rohit Charan, S. K. Roy, Om Prakash, Arvind Soni, Bhujendra Soni and Anuradha Yadav** 79-81
Microbiological compression of aerobically and vacuumed packaged functional chicken kabab stored at refrigeration temperature.

22. **Hemant Saxena** 83-85
Effect of purified lipid fraction of *Ricinus communis* L. leaves ether extract on *Bombyx mori* L.

23. **Shashi Pradhan, H. K. Mehta, Ranbir Singh Jatav and Ajay Rai** 87-89
Effect of vitamin E and SE against sub clinical and clinical mastitis in cows.

24. **C. Bhuyan, S. Sathapathy, S. K. Joshi, S. S. Biswal and S. K. Sahu** 91-93
Therapeutic management of Black Quarter (BQ) in cattle : A case report.

25. **Anand Kumar, Priscilla Kerketta, Deepak Singh and Ramesh Pandey** 95-97
Marketing system of pigs followed by small pig farmers in the Allahabad district of Uttar Pradesh.

26. **A. P. Singh, A. K. S. Chauhan and B. S. Chandel** 99-102
Insecticidal biopotency of *Azadirachta indica, Melia azedarach* and *Toona ciliate* against *Spilarctia obliqua* Walker.

27. **Ram Awadesh Singh** 103-106
Seasonal variation in physico-chemical parameters of water of Sun temple pond at Kochas, Rohtas (Bihar)

28. **C. Bhuyan, S. Sathapathy, S. K. Joshi and I. Ali** 107-108
Surgical management of uterine rupture in pregnant goat : A case report.


Volume 13 Number 02 December 2016

CONTENTS


### PLANT SCIENCE

29. **Vinod Kumari and R. K. Gehlot** 109-114
*Balanites aegyptiaca* (Linn.) Delile - An ethnomedicinally important taxa in Arid region of Rajasthan - A review.

30. **Md. Talib Noori, H. Patro and M. Ray** 115-120
Integrated weed management in wheat - A review.

31. **S. K. Sharma, Vijay Pratap Singh, Narendra Chouhan and R. Sikarwar** 121-124
Response of rainfed soybean to application of micronutrients in Vertisols.

32. **Pooja Murlidharan, A. K. Singh and S. R. Ramgiry** 125-128
Therapeutic role and health benefits of soybean in vegetarian diet- Present scenario.

33. **Santosh, M. C. Mali and G. K. Barupal** 129-134
Freshwater chlorophycean diversity of Kodamdesar and Kalyan Sagar ponds of Bikaner region, Rajasthan.

34. **Tarun Kumar, R. K. Samaiya, Yogendra Singh, K. C. Meena and S. K. Dwivedi** 135-139
Studies on effect of foliar application of plant growth retardants on physiological growth determinants and biochemical estimation of soybean (*Glycine max* (L.) Merrill) quality.

35. **Rajendra Yonzone** 141-142
Present distributional record and availability status of *Piper longum* L. (Piperaceae) a useful ethnomedicinal plant of Darjeeling district of West Bengal, India.

36. **Rajendra Yonzone** 143-144
Exact distributional record of medicinal orchid *Dendrobium chrysanthum* Wall. *Ex.* Lindl. in Darjeeling Himalaya of West Bengal, India.

37. **Dharmendra, Sanjay Singh, Toranlal Nishad, Nikhil Kshatri and B. K. Tiwari** 145-147
Farmers perception about System of Rice Intensification (SRI) technology of Rewa district (M.P.).

38. **Tabassum Ansari and Vimal Saini** 149-152
Study on some less known ethnomedicinal plants used by traditional healers in Jabalpur region.

39. **Rashmi Singh** 153-154
A study on Bacillariophytes of Satna city of Madhya Pradesh.

### ANIMAL SCIENCE

40. **Neelam Tiwari, K. K. Dube and Rita Bhandari** 155-158
Study of water quality of Pariyat river, Jabalpur (M.P.)

41. **Mamta Kumari** 159-160
Effect of furadan (a carbamate pesticide) on histopathology of gills in *Channa punctatus* (Bloch).

42. **A. K. Singh, Rani Kumari and D. K. Singh** 161-168
Structure and dynamic of phytoplankton in two floodplain lakes (Chaurs) of North Bihar, India.

43. **Anu Gopalakrishnan, Usha, P. T. A., Bibu John Kariyil, Reni John and Surya Sunilkumar** 169-171
Phytochemical screening and *in vitro* antioxidant activities of chloroform soluble fraction of *Simarouba glauca* leaf extract.

44. **N. Satish, D. P. Rajesh, H. N. Anjanayappa, S. Benakappa, S. R. Somashekara, B. T. Naveen Kumar and D. P. Prakash** 173-175
Food an feeding habits of *Paraplagusia bilineata* from Mangalore coast.

45. **Neha Tiwari and Rajshree Upadhyay** 177-179
Economic empowerment of rural women through - Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).

46. **A. S. Mahesa Murthu, D. P. Rajesh, S. Benakappa, H. N. Anjanayappa, S. R. Somashekara and D. P. Prakash** 181-184
Spawning frequencies and breeding seasons of *Cociella crocodila* (Tilesius,1812) from Mangalore coast.

47. **Ramesh Kumar Mishra, R. P. Baghel and Pawan Sirothiya** 185-190
Effect of probiotic and fibrolytic enzyme supplementation on performance of lactating buffaloes.

48. **Ramesh Kumar Mishra, R. P. S. Baghel and Pawan Sirothiya** 191-196
Effect of probiotic supplementation on performance of lactating buffaloes.

49. **Neha Tiwari and Rajshree Upadhyay** 197-200
Technological empowerment of farm women in terms of gain in knowledge in selected drudgery reduction technologies related to agriculture.

50. **Vijay Laxmi Saxena and Arushi Chaudhary** 201-206
Analysis and detection of Avian inflluenza (H5N1).

51. **Sonu Mertiya and Rajshree Upadhyay** 207-209
Entrepreneurial behaviour of rural women in Udaipur district of Rajasthan.

52. **N. Satish, D. P. Rajesh, H. N. Anjanayppa, S. Benakappa, S. R. Somashekara, B. T. Naveen Kumar and D. P. Prakash** 211-215
Spawning frequencies and breeding seasons of *Paraplagusia bilineata* from Mangalore coast.

53. **Sunil Kumar Kushwaha and Shivesh Pratap Singh** 217-220
Some records of moths with their diagnostic characters from Maihar block of district Satna (M.P.).

54. **Aruna Pande** 221-222
Homing behaviour in female crossoprizalyoni.

55. **Sadhana Kesharwani** 223-224
Study of inherited facial trait with special reference to dimples in human population of selected area.

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# NATIONAL JOURNAL OF LIFE SCIENCES

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Volume 13 Number 01 June 2016

## CONTENTS

### Plant Science

01. **Sandip B. Savant and Tanaji G. Jagtap** 01-04
Biochemical composition of the marine cyanobacteria *Phormidium tenue* and *Lyngbya* species.

02. **D. N. Padhy and A. K. Panigrahi** 05-10
Analysis of effluent of a chlor-alkali industry and bioconcentration of mercury in some selected plants collected from the contaminated area at Ganjam, Odisha.

03. **Satish Kachare, Sharad Tiwari and Niraj Tripathi** 11-13
Effectiveness of drought tolerance indices to identify tolerant genotypes in soybean (*Glycine max* (L.) Merr.)

04. **Tapas K. Priyadarsan, B. V. S. Anuradha and A. K. Panigrahi** 15-22
Comparison of effluent quality of chlor-alkali industry and bioconcentration of mercury in available fish at Rushikulya estuary.

05. **H. M. Nirbhavane and U. S. Bagde** 23-28
Plasmid mediated resistance mechanism of *Enterobacter* spp. towards sulfamethaxazole.

06. **D. G. Panpatte, H. N. Shelat, Y. K. Jhala and A. M. Dhole** 29-31
Inhibition of multiple fungal phyto-pathogens by biocontrol bacteria.

07. **Sunil K. Pattanaik, K. S. Bhatt and A. K. Panigrahi** 33-40
Sequential chemical leaching behaviour of metals at selected stations in the Chilika lake.

08. **R. Sukanya, S. K. Jayalakshmi, Gururaj Sunkad, D. S. Aswathanarayana and G. Girish** 41-43
Distribution of sorghum charcoal rot caused by *Macrophomina phaseolina* (Tassi) Goid.

09. **Romsha Singh and Sarika Jain** 45-47
Phytochemical screening and radical scavenging activity of medicinally impotant plant : *Mesua ferrea*.

10. **G. Shobha, V. Kantharaju, Abbas Hussain and R. Sukanya** 49-54
Management of root-knot nematode, *M.incognita* in ridge gourd by using bio-agents, botanicals and chemicals.

### Animal Science

11. **Kailash Chandra, Joyjit Ghosh, Amitava Majumder, Sumana Halder and Devanshu Gupta** 55-58
On some economically important scarab beetles (Coleoptera : Scarabaeoidea) from Gomarda wildlife sanctuary, Chhattisgarh

12. **H. S. Gehlot** 59-61
Impact of mining of faunal diversity of Guda Bishnoian area, Jodhpur district of Rajasthan (India).

13. **Mallappa Talawar, T. Veena, A. Krishnaswamy, Y. B. Rajeshwari, G. C. Puttalakshmamma, N. B. Shridhar and G. P. Kalmath** 63-64
Haematological profile during late pregnancy and early postpartum period in Nari Suwarna Ewes.

14. **Rajkumar Ratankumar Singh, C. V. Raju, I. P. Lakshmisha, Faisal Rashid Sofi, Jag Pal and Aylwin Cherian** 65-70
Analysis of *in-vitro* antioxidant activities of crude potato peel and ginger extract.

15. **N. D. Ravi Kumar, D. P. Rajesh, H. N. Anjanayappa, S. Benakappa, S. R. Somashekara, B. T. Naveen Kumar and Harsha Nayak** 71-72
Length-weight relationship and relative condition factor of *Otolithes ruber* (Bloch & Schneider, 1801) from Mangalore coast.

16. **Gopinath Devi, Umesh Dimri, Ranbir Singh Jatav, Mohd. Iqbal Yatoo, P. M. Deepa, A. Gopalakrishnan and Y. Ajith** 73-75
A study on prevalence of subclinical/clinical diabetes in dogs of Uttarpradesh, Uttarakhand and Kerala.

17. **Surbala Yumnam, Thounaojam Maipakpi Chanu, K. I. Singh and D. C. Ray** 77-80
Incidence of rice yellow stem borer, *Scripophaga incertulas* (Walker) and its correlation with abiotic factors in agro-climatic conditions of Manipur.

18. **P. C. Bhati** 81-83
Avifaunal diversity around Jait sagar lake, Bundi (Rajasthan).

19. **S. S. Yadav, M. K. Nayak, D. S. Tomar and A. K. Srivastava** 85-88
Efficacy of insecticide and plant product against the incidence of defoliators and stem borer in soybean.

20. **Deepak Joshi, R. N. Ram, Mohd. Danish, Mahima Tamta and Pawan Kumar Joshi** 89-93
Embryonic development of two carp species with response to varied water temperature and breeding season under Tarai conditions of Uttarakhand.

21. **Gourishanker Patel, M. S. Chari, Sanjeev Kumar, Dibakar Bhakta, Samarendra Behera, Narendra Kumar Verma, R. R. Chavan and Tausif Ahmad** 95-99
Ichthyofaunal diversity of three rivers of Raigarh district, Chhattisgarh.

22. **Rinku Gogoi, Bibha Chetia Borah, Samarendra Behera, Sanjeev Kumar and Amlan Jyoti Das** 101-104
Report on an innovative fishing gear used in natural water bodies in Assam.

23. **D. C. Ray and Rajeeb Chetia Pator** 105-110
Ecological observations on soil inhabiting microarthropods in forest and agroecosystem of Cachar district, Assam.

Volume 13 Number 02 December 2016

## CONTENTS

### Plant Science

24. **Sugandh Suman, Manish Kumar and Harsh Kumar** 111-114
Plant regeneration via somatic embryogenesis from the cultured immature male floral buds of banana genotype 'Dwarf Cavendish'.

25. **Riya Shrivastava and R. M. Mishra** 115-120
Effect of vehicular pollution on micro-morphological structure of road side plant species, *Lantana camara*.

26. **Monika, Shashi Paroda, Leela Wati and Sheh Goyal** 121-123
Simutaneous saccharification and fermentation of sugar-cane bagasse for bioethanol production.

27. **M. Kumar and J. Kabariel** 125-126
Influence of growth regulators and botanicals on physico-chemical and quality parameters in acid lime (*Citrus aurantifolia* Swingle).

28. **Rajendra Prasad** 127-128
Use of certain medicinal plants for the treatment of various skin disorders by tribes and nomadic groups residing in the Mej river catchment area, Rajasthan.

29. **Abhinav Sao, Preeti Singh, Prafull Kumar and Praveen Panigrahi** 129-132
Genetic divergence studies in Indian Kodo Millet (*Paspalum scrobiculatum* L.).

30. **Rajani S. Ganga and Aneykutty Joseph** 133-136
Can nitrogen limitation produce any dietary response in the marine microalga *Chlorella marina* - A combo diet in green water hatchery.

31. **M. R. A. Manimala and S. P. Sundaram** 137-141
Synergistic effect of arbuscular mycorrhizal fungi with *Methylobacterium* and the effect on their microbial population, plant nutrient uptake and enzyme activities in the rhizosphere of onion.

32. **A. H. Kumar Naik, T. Rudramuni and G. Hanumantha Naik** 143-146
Effect of different source of sulphur fertilizer on castor performance.

33. **Chetna Gupta and Pragya Kulkarni** 147-150
A comparative study on *Nostoc* and *Oscillatoria* spp. for heavy metal tolerance and biomass production.

### Animal Science

34. **Mohd. Danish and I. J. Singh** 151-156
Genetic diversity analysis of *Labeo rohita* (Hamilton,1822) from hatchery and Nanak Sagar reservoir of Uttarakhand by using microsatellite markers.

35. **C. P. Ansar, D. Pillai, H. S. Mogalekar, A. Golandaj and D. L. Chauhan** 157-161
Immunomodulatory effect of *Bacopa monnieri* (Brahmi) in enhancing stress tolerance in *Labeo rohita* (Hamilton,1822).

36. **A. Nakul Bhatt, Nilesh Joshi, Khokhar Sanofar and D. Dipeeka Lakhadhir** 163-166
Length-weight relationship and condition factor of Rohu (Male) x Catla (female) hybrid in lake Pichhola, Udaipur (Rajasthan).

37. **Renu Singh, A. K. Srivastava, Neeraj Kumar Gangwar and Uttam Singh** 167-169
Haematological profile of subacute oral toxicity of sodium fluoride and ameliorative effect of vitamin E in male wistar rats.

38. **J. Canciyal, P. Jawahar, H. S. Mogalekar and Dibakar Bhakta** 171-174
Effect of seaweed extracted fucoidan on enhancement of the immune response of giant freshwater prawn *Macrobrachium rosenbergii*.

39. **Asifa Wali, Masood-Ul Hassan Balkhi, Rafia Maqbool, M. M. Darzi and Feroz A. Shah** 175-182
Seasonal rate of infestation in intestines of *Bothriocephalus acheilognathi* and their histopathological alternations and distribution in three freshwater fishes of Kashmir.

40. **Apu Das, Nalini Ranjan Kumar, Biswajit Debnath, M. Krishnan, Anjani Kumar and V. Ramasubramanian** 183-188
Determinants of poverty movements among fisheries households of rural Tripura.

41. **Yarrakula Mahesh Babu, S. S. Dana, H. K. De, Sanjeev Kumar and Bhanu Prakash** 189-191
Attiture of shrimp farmers towards Better Management Practices (BMPS) in Nellore district of Andhra Pradesh.

42. **B. S. Chandel and Arti Singh** 193-196
Exploration of *Chromolaena odorata*, *Spilanthes paniculata*, *Tagetes minuta*, *Scorzonera undulta* and *Mantisalca duriaeri* as insecticides against *Callosobruchus chinensis* Linn (Coleophera : Bruchidae).

43. **Yarrakula Mahesh Babu, S. S. Dana, H. K. De, Sanjeev Kumar and Bhanu Prakash** 197-199
Study on inequality of income among the shrimp farmers in Andhra Pradesh, an empirical data analysis with Gini index.

44. **Archana Shukla and Shivesh Pratap Singh** 201-206
Avian fauna of Unchehara, Satna district of Madhya Pradesh.

45. **Dibakar Bhakta, B. Srikrishnadhas, S. C. Das and J. Canciyal** 207-210
Effect of non-steroid hormones HCG and DES on growth and maturation of Indian river prawn, *Macrobrachium malcolmsonii* (H. Milne Edwards).

46. **O. Gojendro Singh, R. K. Radhakrishore, Th. Ruhini and R. K. Jeshreena** 211-215
Abundance and seasonal variation of Odonates in valley districts of Manipur.

47. **B. C. Joshi, A. K. Upadhyay and Manjulata Bisht** 217-219
Biochemical composition of different by-catch fish wastes from Haripura reservoir for their utilization as protein enrichment in artificial diet for *Labeo rohita* fingerlings.

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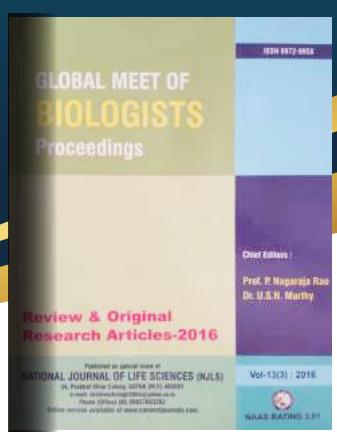


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Volume 13 | Number 03 | December 2016


01. **Madhumita Mukherjee, H. D. Prdeep, Amit Dutta and S. K. Abul Kashem** 01-10
Development of ornamental fisheries in India and the challenges of disease.

02. **Hameeda Bee and Gopal Reddy** 11-22
Understanding microbial strategies for beneficial plant-microbe interactions.

03. **C. Annapurna** 23-26
Coastal and marine biodiversity of India.

04. **K. Sri Manjari, A. Venkateshwari, M. L. N. Deepika and Pratibha Nallari** 27-34
Epigenetic regulation of chronic pancreatitis.

05. **Sukumar Sarkar** 35-38
Sorghum a regiment in biodiversity cropping programme.

06. **Karuna Rupala and Sashidhar Rao Beedu** 39-46
Toxigenic potentials of Indian *Fusarium verticillioides* (=*F.moniliforme*) isolates for the production of fumonisin b1 mycotoxin.

07. **M. G. Roymon, Rashmi Zankyani and Mable Varghese** 47-52
Antibiotic resistance pattern and plasmid profiling of thermotolerant bacteria from river Shivnath of Durg region, Chhattisgarh.

08. **Jalja S. Kumar, A. M. Babu, Praveen Kumar Mishra and B. B. Bindroo** 53-60
SEM studies on the anatomical alternations in mulberry root leading to the formation of galls due to root-knot nematode, *Meloidogyne incognita*.

09. **Ravindar Gundeti, Geeta Rajalingam and Nagaraja Rao Poduri** 61-73
Study of antioxidant enzyme activity in haemolymph of Eri silkworm challanged by bacteria.

10. **Madhura Mukadum, Arvind Kulkarni and Mahesh Naik** 74-80
Histopathological and biochemical studies of hepatopancreas in *Katelysia opima* (Gmelin) exposed to cypermethrin.

11. **Shanky Bhat, Jyoti Fulekar, Bhawana Pathak and M. H. Fulekar** 81-86
Bioinformatics approaches for metagenomic studies in rhizosphere bioremediation.

12. **Dande Swapana Sree and S. Shamshad** 87-91
Integrated mosquito management using weeds as ecofriendly botanicals in control of mosquito vector *Aedes aegypti* (Diptera : Culicidae).

13. **Swetha Sudha Nagamalla, Geetarajalingam and Nagaraja Rao Poduri** 92-100
Molecular phylogenetic analysis of *Xiphenima insigne* (Nematoda) by using its region of r-DNA.

14. **B. P. Niranjan Reddy , B. Rao Prasad, K. Raghavendra** 101-110
Comparative genomic analysis glutathione S-transferase (GST) supergene family derived from nine insect species and one arachnid species.

15. **Anu Prasanna Vankara, M. Hemalatha and C. Vijayalakshmi** 111-125
Population dynamics of cestodes (Cestode : *Pseudophyllidea carus*,1863) in the freshwater, *Mastacembelus armatus* Lacepede 1800 from river Godavari, Rajahmundry.

16. **Shweta Sharma** 126-132
Protective effect of indole-3-carbinol in reducing genotoxicity induced by pahs (7, 12-DMBA) in rats.

17. **S. P. Biswas** 133-137
Mitigation plan for the impact of proposed hydro-power projects on aquatic biodiversity in North-Eastern.

18. **N. Elamathi, Kamaraju Raghavendra, Poonam Sharma Velamuri, Vaishali Verma and Neena Valecha** 138-141
Detoxification enzymes in mosquitoes and their role in insecticide resistance mechanism - A brief review.

19. **Priti Raj Pandita and Bhawana Pathak** 142-149
*Agrobacterium tumefaciens* mediated transformation and its implication for phytoremediation of toxic metals.

20. **S. Mohammed Ghouse, Mansoor Rehman and Silar Mohammed** 150-159
Environmental and of e-wastes and it's management.

21. **Sanjib K. Das and Debojyoti Dutta** 160-165
Phylogenetic status of North Eastern Indian common toad, *Bufo melanostictus* Schneider,1799 based inferred from DNA sequences of mitochondrial 12S and 16S ribosomal RNA genes.

22. **Mabel Varghese, Rashmi Zankayni and Marthoor George Roymon** 166-170
Prevalence of multidrug resistant pathogenic *Escherichia coli* serotypes o89 and o61 from potable water sources of Durg, Chhattisgarh.

23. **M. Vijaya Kumar, K. Veeraiah and K. S. Tilak** 171-186
Mixed toxicity of three different groups of organophosphorus pesticides (quinalphos, malathion, monocrotophos) on freshwater fish *Channa punctatus*.

24. **S. F. Siddique and S. S. Naz** 187-188
A new digenetic trematode *Allocreadium matatilainsis* sp. Nov. of the genus *Allocreadium* from a fresh water fish *Channa punctatus* (Bl.) from Matatila dam, Jhansi (U.P.) India.

25. **Lekhasri Samantsinghar** 189-199
Estimation and analysis of msw for sustainable sanitation design in salia, sahi and urban slum in Bhubaneswar, Odisha, India.

26. **P. Anil Kumar and Geeta Rajalingam** 200-206
Dynamics of a trematode parasite *E.laterostomum* in the fresh water fish *Catla catla* and Hyderabad lakes.

27. **B. Chitaranjan Rao, D. Veera Nagendra Kumar, K. Ganesh, S. K. Giri Babu and P. Nagarajarao** 207-212
Prediction of population status of *Helicoverpa armigera* and damage status in cotton field using sex pheromone.

28. **Ch. Mohan, Rama Devi, P. Manjula, D. Sreekanth and Prathibha Devi** 213-220
Tissue culture and phytochemical analysis of *Tylophora indica* (Burm. F.) Merill.

29. **P. Abhigna, Madhu Sudhan Reddy, P. Pyde and Acharya Nagarjun** 221-225
Human mouth microbial flora : Route for various diseases.

30. **J. Shashikanth and P. Ramachandra Reddy** 226-230
Morpho-anatomical studies of stem bark of *Sterculia urens* Roxb.

31. **B. Shiva Prasad, J. V. Rao and P. Sankar Ganesh** 231-239
Toxicological and biochemical responses of earthworm *Eisenia foetida* exposed to an organophosphorus pesticide, chlorpyrifos.

32. **N. Suresh Kumar, V. K. Lakshmanan, A. Saha and B. B. Bindroo** 240-253
Expression of hybrid vigour in silkworm hybrids of silkworm, *Bombyx mori* L under hill conditions.

33. **B. Ravinder Reddy and P. Nagaraja Rao** 254-256
Ultrasonic investigations in *Salmonella* species at various growth stages.

34. **Vinod Cingeetham, Pratibha Nallari, M. L. N. Deepika and Venkateshwari Ananthpur** 257-264
Genetic and molecular aspects of cohesinopathies.

35. **V. M. Gangotri, L. M. Mudkhede and M. S. Gangotri** 265-269
On the proteins of neuroendocrine hormones in the fresh water crab, *Barytelphusa guerini* (H. Milne Edwards) (Decapoda, Potamidea).

36. **P. V. S. K. Bala Deekshita and Y. V. K. Durga Prasad** 270-280
Protein profiling in petroleum degrading bacteria

Papular Article
Climate Change: A Challenge to Sustain Environmentand Human Health
Volume - 6 Number - (1&2) Year - 2016

# Climate Change
## A Challenge to Sustain Environment and Human Health

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**Climate Change:** India is the most 13th most vulnerable country to climate change. since more than 60% of Indian agriculture is based on rain and it hosts 33%of the world' poor, climate will be having significant impact on the food nutritional security of the country (Sharma, 2013). Global warming is the increases of average world temperatures because of what is known as the greenhouse effect. As the greenhouse gases build up in the atmosphere, the Earth gets hotter. This process is leading to a rapid change in climate, also known as climate change (Kour, 2014). In other words, the layer of Greenhouse Gases (GHG), including carbon dioxide (CO2), methane, nitrous oxide and others, in their optimum concentration in Earth's atmosphere, acts like a protective blanket which maintains its temperature and the natural ecosystem. Lately, anthropogenic (human induced) activities, mainly burning of fossil fuels, have resulted in increasing the concentration of these gases which in turn trap extra heat and increase Earth's average temperature leading to climate change. This in turn leads to a wide-ranging impact including sea level rise, melting of snow and glaciers, changes in weather patterns, increased frequency and intensity of extreme events and natural disasters etc (Uberoi, 2014).

The conference concerned to climate change was first held in Kyoto Protocol in Japan and signed by many countries to protect the environment during 11 December 1997. The effects of climate change span the physical environment, ecosystems and human societies. It also includes the economic and social changes which stem from living in a warmer world. Human-caused climate change is one of the threats to sustainability. Many physical impacts of climate change are already visible, including extreme weather events, glacier retreat, changes in the timing of seasonal events (e.g. earlier flowering of plants), sea level rise, and declines in Arctic sea ice extent. Climate change has already impacted ecosystems and humans (IPCC, 2014). In combination with climate variability, it makes food insecurity worse in many places and puts pressure on fresh water supply. This, in combination with extreme weather events, leads to negative effects on human health. Climate change has also contributed to desertification and land degradation in many regions of the world. This has implications for livelihoods as many people are dependent on land for food, feed, fibre, timber, and energy (IPCC, 2014). Rising temperatures, changing precipitation patterns and the increase in extreme events threaten development because of negative effects on economic growth in developing countries. Climate change already contributes to migration in different parts of the world. The future impact of climate change depends on the extent to which nations implement prevention efforts, reduce greenhouse gas emissions, and adapt to unavoidable climate change effects (Oppenheimer, 2014). Much of the policy debate concerning climate change mitigation has been framed by projections for the twenty-first century. The focus on a limited time window obscures some of the problems associated with climate change. Policy decisions made in the next few decades will have profound impacts on the global climate, ecosystems, and human societies, not just for this century, but for the next millennia, as near-term climate change policies significantly affect long-term climate change impacts (Field, 2014 and Clark et al., 2014).

**Effects of Global Warming on Human Health:** Humans are exposed to climate change through changing weather patterns (temperature, precipitation, sea-level rise, and more frequent extreme events) and indirectly through changes in water, air and food quality and changes in ecosystems, agriculture, industry and settlements and the economy (Confalonieri; et al., 2007). Air pollution, wildfires, and heat waves caused by global warming have significantly affected human health (Takaro et al.,2013),and in 2007, the World Health Organization estimated 150,000 people were being killed by climate-change-related issues every year (CAP, 2007).

A study by the World Health Organizationconcluded that climate change was responsible for 3% of diarrhoea, 3% of malaria, and 3.8% of dengue fever deaths worldwide in 2004. Total attributable mortality was about 0.2% of deaths in 2004; of these, 85% were child deaths. The effects of more frequent and extreme storms were excluded from this study. The human impacts include both the direct effects of extreme weather, leading to injury and loss of life (IPCC, 2014), as well as indirect effects, such as undernutrition brought on by crop failures. Various infectious diseases are more easily transmitted in a warmer climate, such as dengue fever, which affects children most severely, and malaria. Young children are the most vulnerable to food shortages, and together with older people, to extreme heat. India's post-2020 climate goals: For post-2020 period, in response to the decisions of the Conference to the Parties, India submitted its Nationally Determined Contribution (NDC) to the UNFCCC, outlining the climate actions intended to be taken under the Paris agreement.

The eight goals put forth by India in its Nationally Determined Contribution (NDC) are: To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, to adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development, to reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005, to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF), to create an additional carbon sink of 2.5 to 3 billion tons of CO2 equivalent through additional forest and tree cover by 2030, to better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management, to mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap and to build capacities, create domestic framework and international architecture for quick diffusion of cutting-edge climate technology in India and for joint collaborative R&D for such future.

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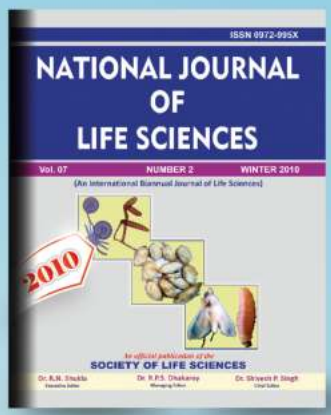







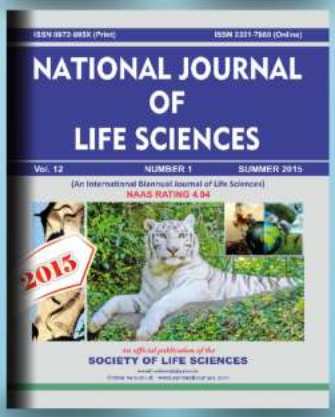






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