### **INDIAN JOURNAL OF NATURAL SCIENCES (IJONS)**

**BIMONTHLY INTERNATIONAL JOURNAL** 

Editor-in-Chief Dr.S.Vijikumar

#### **Published by**

#### TAMILNADU SCIENTIFIC RESEARCH ORGANISATION

39,MURA BHAVAN,KOODAL NAGAR,RAJAGOPALAPURAM POST, PUDUKKOTTAI, TAMIL NADU, INDIA.

ijonstnsro@gmail.com,editorijons@gmail.com-www.tnsroindia.org.in

Editor-in-Chief, Editorial Board and Publisher take no responsibility for inaccurate, misleading data, opinion and statements appeared in the articles and advertisements published in this journal. It is the sole responsibility of the contributors and advertisers. No part of this journal can be reproduced without the written permission of the Editor-in-Chief who also holds the copyright © of the "Indian Journal of Natural Sciences (IJONS)".

# **Indian Journal of Natural Sciences (IJONS)**

# **Editorial Committee Members (ECM)**

Editor-in-Chief	Dr.S.Vijikumar Director TamilNadu Scientific Research Organisation Pudukkottai-622003, Tamil Nadu. India.
	Editorial Committee
Honorable Chief Advisor	Prof. Dr. V. Ramaiyan Marine Biologist Research Advisor Sri Venkateswara College of Arts & Science. Peravoorani, Thanjavur. Tamil Nadu. India.
Honorable Chief Advisor	Prof.Dr.A.Ganapathi Hon'ble Vice Chancellor, Bharathiyar University, Tiruchirappalli. Tamil Nadu. India.
Honorable Chief Advisor	Prof.Mahdi Vatan Parast Chancellor & Professor, Islamic Azad University, Quchan Branch,Quchan-Khorasan Razavi- Iran.
Honorable Chief Advisor	Prof.Dr.Hamid Saremi Vice- Chancellor, Islamic Azad University, Quchan branch, Quchan-Iran.
Honorable Chief Advisor	Dr. Sr.D.Victoriya Amalorpava Mary, FBS Principal, Bon Secours College for Women, Vilar bypass road, Thanjavur - 613 006. Tamilnadu, South India.
Honorable Chief Advisor	Prof.Dr. B.A. ASBI Vice President Research, Management & Science University(MSU), University drive off persiaran olahraga, 40100 shah alam selangor, MALAYSIA.
Honorable Member	Dr. N. Jayabalan Professor & Head, Dept. of plant Science, School of life Sciences Bharathidasan University, Tiruchirappalli. Tamil Nadu. India.
Honorable Member	Dr. T.S. Saravanan Professor of Biotechnology cum Research Co-ordinator Dr.M.G.R Educational and Research Institute University Periyar E.V.R High Road, Maduravoyal, Chennai-600095.
Honorable Member	Dr.S.P.Subramaniyan Asst.Controller of Patents and Designs (Govt.of India) Patent Office,IPR Building,GST Road,Guindy,Chennai 600032
Honorable Member	Er. Abdul Samad. M. Kamdod Assistant Professor, Department of Civil Engineering Bharat Institute of Science & Technology for Women Mangalpally, Renga Reddy Dist. Andhra Pradesh, India

Honorable Member	Dr. Hina kousar Assistant Professor, Department of Environmental Sciences, Kuvempu University, Shankaraghatta, Shivamogga – 577 451, Karnataka ,India
Honorable Member	Mr.B.Rajesh Manager (Tech. Services Env.) Grass Roots Research & Creation India (P) Ltd Noida – 201301,Uttar Pradesh,India
Honorable Member	Mr. K.Ramanathan Head, Department of Bioinformatics, Thanthai Hans Roever College Perambalur, TamilNadu, India.
Honorable Member	Dr. K.Gurunathan  Prof & Head, Department of Nano science & Technology,  Alagappa University, Karaikudi, TamilNadu, India.
Honorable Member	Dr. Rajashekhar O, Patil Assistant Professor, Department of Environmental Management Sant Gadge Maharaj College of Commerce & Economics, Mumbai 400004, India
Honorable Member	Dr.M.Ravichandran Prof.& Head Department of Environmental Management Bharathidasan University, Tiruchirappalli. Tamil Nadu. India.
Honorable Member	<b>Dr.M.Krishnan</b> Prof.& Head, Department of Environmental Biotechnology Bharathidasan University, Tiruchirappalli. Tamil Nadu. India
Honorable Member	Dr.K.Kumarasamy Prof.& Head,Department of Geography Bharathidasan University, Tiruchirappalli. Tamil Nadu. India
Honorable Member	Dr.A.Sathya, Assistant professor – III, School of Civil Engineering, SASTRA University, Thanjavur – 613401, TamilNadu, India.
Honorable Member	Dr.G.G.Hammad Ahmad Shadab Senior Assistant Professor, Department of Zoology Aligarh Muslim University, Aligarh-202002, Uttar Pradesh
Honorable Member	Dr.H.Syed Jahangir Assistant Professor, P.G. and Research Department of Botany Jamal Mohamed College(Autonomous) Trichirappalli-620020,TamilNadu,India.
Honorable Member	Mrs.A.Indumathi Asst.Professor,Department of Biotechnology, Bon Secours College for Women,Vilar bypass road, Thanjavur Tamilnadu, South India

Honorable Member	Dr. P. Santhanam Assistant Professor, Department of Marine Science, School of Marine Sciences, Bharathidasan University, Tiruchirappalli. Tamil Nadu. India
Honorable Member	Dr.B.Parimala Devi Additional Director, Veeramani Mohana Centre for Quality Life Engineering Research, Periyar Maniyammai University, Vallam,Thanjavur ,Tamil Nadu. India.
Honorable Member	Dr. M. Lekeshmanaswamy Associate professor PG and Research Department of Zoology Kongunadu Arts and Science College G.N. mills (PO), Coimbatore-641 029, TamilNadu, India.
Honorable Member	Dr. P.Udaya Kumar Principal D.K.T College of Education, 1/341, Near Amaravathipalayam, Peruntholuvu (PO), Tirupur - 641 665, TamilNadu,India.
Honorable Member	Dr.Syed Mohamed Asst. Prof. Dept. of Zoology, Jamal Mohamed College Tiruchirappalli, TamilNadu, India
Honorable Member	Dr. Komalavalli Narayanaswamy Associate Professor, PG and Research Department of Botany H.H. The Rajah's College (Autonomous) Pudukkottai – 622 001, Tamil Nadu, India.
Honorable Member	Mis.S.Muthu Bharathi Asst.Professor,Department of Chemistry, Bon Secours College for Women,Vilar bypass road, Thanjavur Tamilnadu, South India
Honorable Member	Mrs.Sujatha Ilangovan Assistant Professor, Department of Biochemistry Holy Cross College, Tiruchirapalli-620002. TamilNadu, India.
Honorable Member	Dr.C.Kathirvelan Assistant Professor, Department of Animal Nutrition Veterinary College and Research Institute (TANUVAS) Namakkal -637002. TamilNadu, India.
Honorable Member	Professor.G.Ganesan Professor, Department of Mathematics Adikavi Nannaya University,Rajahmundry-533105 Andhra Pradesh, India.

Honorable Member	Mis D.Kalpana Asst.Professor,Department of Chemistry, Bon Secours College for Women,Vilar bypass road, Thanjavur TamilNadu, South India
Honorable Member	Dr.C.Balusami Assistant Professor, Department of Livestock Production and Management College of Veterinary and Animal Sciences Pookode-673576.Kerala, India.
Honorable Member	Dr.P.Kavitha Assistant Professor, Department of Zoology and Biotechnology AVVM Sri Pushpam College (Autonomous) Poondi,Thanjavur, TamilNadu, India.
Honorable Member	Dr.Vasudevan Ayyappan Department of Biology, Delaware State University, Dover, Delaware - 19901
Honorable Member	Mrs.A.Amargeetha Asst.Professor,Department of Chemistry, Bon Secours College for Women,Vilar bypass road, Thanjavur TamilNadu, South India
Honorable Member	Mrs.N.Rajarajeswari Asst.Professor,Department of Physics, Bon Secours College for Women,Vilar bypass road, Thanjavur TamilNadu, South India
Honorable Member	Dr.V. Rajendran Dean i/c Vanavarayar Institute of Agriculture Manakkadavu – 642 103. Pollachi Taluk, TamilNadu,India.
Honorable Member	Dr.C.Thamaraiselvi Assistant Professor, Dept. of Biotechnology Mother Teresa Women's University Kodaikanal-624101,TamilNadu,India.
Honorable Member	<b>Dr. K.Madhava Chetty</b> Plant Taxonomist, Assistant Professor, Department of Botany, <i>SVUCS</i> , S.V. University, Tirupati-517 502, Andhra Pradesh, India.
Honorable Member	Dr.S.Ramesh Kumar Assistant Professor, Department of Horticulture, Vanavarayar Institute of Agriculture, Manakkadavu-642103,Pollachi,TamilNadu,India.
Honorable Member	Dr. S. Balasubramanian Assistant Professor Department of Mathematics, Government Arts College (A), Karur – 639 005, Tamilnadu, India.

Honorable Member	Dr.G. Rubalakshmi D/o V.P. Govindaraj, #3/41, Nanbargal Nagar,Muthukalipatty, Rasipuram TK, Namakkal DT-637401.Tamilnadu,India.
Honorable Member	Mr.Sridhar Ramachandran Assistant Professor, Department of Biological Science, Gojan College of Teacher Education, Chennai-600 052, TamilNadu, India
Honorable Member	Dr. H. Krishna Ram #11, 1st Main, Opp. to SBM, Gnanaganganagar,Bangalore- 560 056, Karnataka, India.
Honorable Member	Dr.S.Senthil Murugan Assistant Professor, Department of Animal Nutrition, College of Veterinary and Animal Sciences, Pookode, Wayanad, Kerala, India.
Honorable Member	R.Muthukrishnan Assistant Professor Department of Soil Science and Agricultural Chemistry Vanavarayar Institute of Agricultural Manakkadavu, Pollachi-642- 103, TamilNadu, India
Honorable Member	K.Ashokkumar Senior Research Fellow Dept of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbutore-3, TamilNadu, India
Honorable Member	Dr.Subbiah poopathi Scientist-F/Deputy-Director Vector control Research Centre, Medical complex, Indira Nagar,Pondicherry-605006,India
Honorable Member	Dr. Sivalingam Elayabalan Assistant professor 3/33,Eachampatti village Attur(Tk),Salem(Dt)-636107, TamilNadu, India
Honorable Member	Dr. Horne Iona Averal Associate professor of Head Holy cross college (Autonomous), Trichy. TamilNadu, India
Honorable Member	Dr.G.Singaravelu Professor & Head Department of Education Bharathiar University Coimbatore-46 TamilNadu, India
Honorable Member	Dr.Ga.Bakavathiappan Associate Professor in Zoology SBK College, Aruppukottai - 626 101, TamilNadu, India.

Honorable Member	Dr.P.Govindaraj  Head & Associate Professor in Chemistry  Department of Chemistry  SBK College, Aruppukottai - 626 101, TamilNadu, India
Honorable Member	Dr.M.Gopikannan Senior Research Fellow, 15-B3 Paramathi Main Road, S.P.Pudhur, Namakkal(Dt)-637 001, TamilNadu, India
Honorable Member	Dr.K.Samiayyan Dean Agricultural College and Research Institute, TNAU, Eachangkottai, Thanjavur-614902, T.N,India.
Honorable Member	Dr.M.Vasanthy Assistant professor Periyar Illam, (upstairs), No,4,Vayalur Road, Kumaran Nagar, Ramalinga nagar south Extension, Trichy-620017, Tamil Nadu, India
Honorable Member	Dr.N.Vijayakumar Assistant Professor Dept.of Biochemistry & Biotechnology Annamalai University, Annamalainagar-608 002, Tamilnadu, India.
Honorable Member	Dr. S. Umamaheswari Assistant Professor Department of Environmental Biotechnology School of Environmental Sciences Bharathidasan University Tiruchirappalli – 620 024, Tamil Nadu
Honorable Member	Dr. Jai Shanker Pillai H.P. H.D. Ponna swamy Pillai # 644, Ganesh Temple Street Hunsur taluk, Mysore district – 571105, Karnataka, India
Honorable Member	Mr. Nesarajan. J Assitant Professor, Department of Zoology, Bishop Heber College, Trichy-17, Tamil Nadu. India
Honorable Member	Dr. John Abraham Assistant Professor, Department of L.P.M. College of Veterinary and Animal Sciences Pookode, Wayanad. 673576, Kerala.
Honorable Member	Dr. S. Jayachandran Professor & Head, Dept. of Oral Medicine and Radiology, Tamil Nadu Govt. Dental College and Hospital, Chennai -600003, Tamil Nadu, India.

Honorable Member	Dr.V.M. Srinivasan Assistant Professor (Plant Pathology) Department of Crop Protection Thanthai Roever Institute of Agriculture and Rural Development, Valikandapuram Post, Perambalur - 621115., Tamil Nadu.
Honorable Member	Dr.Ranjith.D Assistant Professor, Department of Veterinary Pharmacology and Toxicology, College of Veterinary and Animal Sciences, Pookode, Wayanad – 673576. Kerala,India
Honorable Member	Daniel Jebaraj,M. C/o Joshuah No.14A, Thendral Nagar New Thillai Nagar, Vadavalli, Coimbatore-641041,TamilNadu,India
Honorable Member	Dr.Sindhu. K Veterinary Officer Department of AH and VS Karnataka, India.
Honorable Member	Dr.Rajesh R Young Scientist, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore 641 003, Tamil Nadu, India.
Honorable Member	Dr.Jaivel N Post Doctoral Fellow, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore - 641 003, Tamil Nadu, India.
Honorable Member	Dr.R.Prabhu Research Associate, NADP Cell,CARDS, TamilNadu Agricultural University, Coimbatore - 641 003,Tamil Nadu, India.
Honorable Member	Dr.M.Uma Gowri Research Associate, NADP Cell,CARDS, TamilNadu Agricultural University, Coimbatore - 641 003,Tamil Nadu, India.
Honorable Member	S.Jegan Karuppiah Assistant Professor, Department of Rural Development Science, Arul Anandar College, Karmathur - 625 514, Madurai. Tamilnadu, India
Honorable Member	Dr. Rina Poonia Associate Professor, Department of Physical Education, Faculty of Arts & Law, Manipal University, Jaipur, India.

Honorable Member	Dr.S.Ezhil Vendan Scientist Fellow, Food Protectants & Infestation Control Department, CSIR-Central Food Technological Research Institute, Mysore-570 020, Karnataka, India.
Honorable Member	Dr.K.Shameem Rani Associate Professor and Head, Dept. of Zoology,M.S.S Wakf Board College, Madurai-625020,TamilNadu,India.
Honorable Member	Dr.B.Nagarathnam No.2, New Agraharam, Erode-638001, TamilNadu,India.
Honorable Member	Dr.P.Balaji Assistant Professor (Agricultural and Rural Management), Centre of Excellence in Biofuels, Forest College and Research Institute, Tamil Nadu Agricultural University(TNAU), Mettupalayam- 641 301, Coimbatore Dt., Tamil Nadu.
Honorable Member	Dr.M.Shanthasheela Assistant Professor (Agricultural Extension), Department of Sericulture, Forest College and Research Institute, Tamil Nadu Agricultural University(TNAU), Mettupalayam- 641 301, Coimbatore Dt. Tamil Nadu.
Honorable Member	Dr. N. Balakrishnan Young Scientist, Department of Nano Science & Technology, Tamil Nadu Agricultural University, Coimbatore – 641003, TamilNadu,India.
Honorable Member	Dr.N.Raman Associate Professor, Department of Chemistry, VHNSN College, Virudhunagar-626 001, TamilNadu,India.
Honorable Member	M.Thenmozhi Assistant Professor (Agrl. Engg.), Imayam Institute of Agriculture and Technology, Kannanur, Trichy - 621206, TamilNadu,India.

Honorable Member	K.Kalidas Assistant Professor & Head, Dept. of Social Science, Vanavarayar Institute of Agriculture, Manakkadavu, Pollachi, TamilNadu,India.
Honorable Member	Dr.M.Kumar Assistant Professor(Horticulture), Vanavarayar Institute of Agriculture, Manakkadavu,Pollachi, Coimbatore-642103, TamilNadu,India.
Honorable Member	Dr.T.Pradeesh Kumar Assistant Professor (Agronomy), Vanavarayar Institute of Agriculture, TNAU, Pollachi, Coimbatore-642103, TamilNadu, India.
Honorable Member	Dr.M.R.Nandhakumar Assistant Professor (Agronomy), Kumaraguru Institute of Agriculture (Affiliated to TNAU), Appakoodal,Erode-638315, TamilNadu,India.
Honorable Member	Dr.R.Govindan Assistant Professor (Agronomy), Kumaraguru Institute of Agriculture (Affiliated to TNAU), Appakoodal,Erode-638315, TamilNadu,India.
Honorable Member	Dr.K.Vinoth Kumar Research Associate, Department of Agronomy, Agricultural College and Research Institute, TNAU, Madurai – 625104, TamilNadu,India.
Honorable Member	Dr.S.Sandhya Professor and Head of Department, Department of Pharmacognosy, St.James College of Pharmaceutical Sciences, Chalakkudy, Thrissur, Kerala, India.
Honorable Member	Dr.P.Anbarasan Assistant Professor (Agricultural Extension), Kumaraguru Institute of Agriculture, Tamil Nadu Agricultural University, Sakthi Nagar, Erode-638315, Tamil Nadu, India.
Honorable Member	Dr.N.Muthuselvan Principal, Saiva Bhanu Kshatriya College, Aruppukottai,Virudhunagar,TamilNadu,India.

Honorable Member	Dr.M.Rajasekar Research Associate, Precision Farming Development Center, Agricultural Engineering College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, TamilNadu,India.
Honorable Member	Dr.A.Dinakara Rao Associate Professor, Center for Bioinformatics, School of Life Sciences, Pondicherry university, Puducherry, India
Honorable Member	Dr.K.Sivakumar Associate Professor, Department of Botony,Annamalai University, Annamalai Nagar,TamilNadu,India
Honorable Member	Dr.S.Moghana Lavanya Assistant Professor, Department of Agricultural Economics, Agricultural College and Research Institute, TamilNadu Agricultural University, Madurai, TamilNadu, India.
Honorable Member	Dr.M.Biruntha Assistant Professor, Department of Animal Health and Management, Alagappa University,Karaikudi,TamilNadu,India
Honorable Member	Dr.K.Saravanan Assistant Professor ,PG & Research Dept. of Zoology, Nehru Memorial College (Autonomous), Puthanampatti,Tiruchirappalli TamilNadu,India.
Honorable Member	Dr.A.Kalyana Sundaram Assistant Professor(Entomology), Agricultural College and Research Institute, Tamil Nadu Agricultural University, Eachangkottai,Thanjavur,TamilNadu,India.
Honorable Member	Sirajuddin M.Horaginamani Principal, Sayyid Akbar Husayni Degree College of Arts,Commerce and Science,Kalaburagi,Karnataka,India.
Honorable Member	Dr.P.Ramachandran Director & Head, Trichy Institute of Regenerative Medicine, Thillai Nagar West, Trichy, TamilNadu, India.
Honorable Member	Dr.S.Lingathurai Assistant Professor, Department of Biotechnology, The Madura College, Madurai, TamilNadu, India.

Honorable Member	Dr.P.Manonmani Assistant Professor, Department of Life Sciences, Centre for Research and Development, PRIST University, Vallam, Thanjavur TamilNadu, India.
Honorable Member	Dr. Syed Abrar Research Associate, Department of P.G. Studies & Research in Applied Botany, Kuvempu University, Shivamogga, Karnataka, India.
Honorable Member	Dr.V.Violet Dhayabaran Associate Professor ,Department of Chemistry, Bishop Heber College (Autonomous), Puthur, Tiruchirappalli,TamilNadu,India.
Honorable Member	Dr.H.T.Raghavendra Gowda Haluvalli, Opposite Bus stand, Mallalur,Chikamagalore, Karnataka,India.
Honorable Member	Dr. Goverdhan Rathla K. S Assistant Professor, Department of Physics, Government First Grade College, Birur, Kadur Talluk, Chickmagalore District. Karnataka, India.
Honorable Member	Dr.Ananthnag B Lecturer, Department of Environmental Science, Kuvempu University, Shivamogga, Karnataka, India.
Honorable Member	Dr.M.Ramesh Associate Professor, Department of Biotechnology, Alagappa University, Karaikudi-630003, Sivagangai Dt, TamilNadu, India.
Honorable Member	Dr.S.Yamini Sudha Lakshmi Assistant Professor, Department of Medical Biochemistry, University of Madras, Taramani Campus, Chennai-600113, TamilNadu, India.
Honorable Member	Dr. SA. Ramyabharathi 253/ A37, TNHB Colony, Kollapatti, Animur (PO),Tiruchengode (TK), Namakkal District- 637214, TamilNadu,India.
Honorable Member	Dr.B.Kaleeswaran Assistant Professor, Dept. of Zoology & Biotechnology, A.V.V.M.Sri Pushpam College, Poondi, Thanjavur,T.N.India.

Honorable Member	Dr.A.Radha Assistant Professor, Dept. of Zoology Kunthavai Naacchiyar Govt Arts College for Women, Thanjavur-7, T.N. India.
Honorable Member	Dr.V.L.Madhu Prasad Directorate of Extension, University of Agricultural Science, Hebbal,Bangaluru-560024. Karnataka,India.
Honorable Member	Dr.T.Shanmugasundaram Research Associate, Department of Vegetable Crops, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore-641 003 Tamil Nadu,India.
Honorable Member	<b>Dr.V.Sakthirama</b> 3/8,P Block,Sree Dakshaa-Vhiridhaa Bharthiyar University Post,Coimbatore-641046 TamilNadu,India.
Honorable Member	<b>Dr.M.Kiruba</b> 261B/5 Anna Nagar, Kulithalai-639104, Karur(Dt), Tamil Nadu
Honorable Member	Dr.Karpagavalli B Assistant Professor (FSN), RVS Agricultural College, Usilampatti Village,Sengipatti Via, Thanjavur-613402,Tamil Nadu,India.
Honorable Member	Dr.D.Leninraja, Assistant Professor (Soil Science & Agricultural Chemistry) Agricultural College and Research Institute, Tamil Nadu Agricultural University, Kudumiyanmalai,Pudukottai- 622 104,T.N
Honorable Member	Dr.S.Maragatham, Associate Professor (Soil Science & Agricultural Chemistry) Agricultural College and Research Institute, Tamil Nadu Agricultural University, Kudumiyanmalai,Pudukottai- 622 104,T.N.
Honorable Member	Dr.D.Balamurugan Assistant Professor (Soil Science & Agricultural Chemistry) JKK Munirajah College of Agricultural Science, T. N. Palayam, Erode- 638 506,T.N
Honorable Member	Dr.N.Rajesh Nallaiah Assistant Professor (Agronomy) RVS Agricultural College, Usilampatti Village,Sengipatti via, Thanjavur-613402,Tamil Nadu,India.

Honorable Member	Dr.C.N.Hari Prasath Senior Research Fellow D3 Quarters, Forest College and Research Institute, Kothagiri Road, Mettupalayam (Tk), Coimbatore (Dt), Tamil Nadu – 641 301, India.
Honorable Member	Dr.Prantosh K. Paul Department of Computer & Information Science, Raiganj University, Raiganj, West Bengal-733 134, India.
Honorable Member	Dr. Ajay Anil Gurjar Professor & Dean Academics, Sipna College of Engineering & Technology, Amravati(M.S)- 444606,India.
Honorable Member	Dr.Mathews Plamoottil Asst. Professor in Zoology, Govt. College Chavara, Kollam, Kerala,India.
Honorable Member	Dr.Mrs.E.Emimal Victoria Assistant Professor, Department of Zoology Sri Meenakshi Govt. Arts College for Women, Madurai TamilNadu,India
Honorable Member	Dr.C.Kandeepan Asst.Professor and Head, PG Department of Zoology, A.P.A College of Arts and Culture, Palani-624601,Dindigul Dt.T.N.,India.
Honorable Member	Dr.V.E.Nethaji Mariappan Scientist"F" Centre for Remote Sensing and Geoinformatics Sathyabama University,Rajiv Gandhi Road, Sholinganallur,Chennai – 600119,Tamil Nadu
Honorable Member	Dr.K.Nagarajan Associate Professor, Department of Zoology VHN Senthikumara Nadar College, Virudhunagar, TamilNadu, India.
Honorable Member	Dr.D.Sivaraman Scientist-C Department of Pharmacology, Sathyabama University, Jeppiaar Nagar, Rajiv Gandhi road, Chennai- 600 119.

Honorable Member	Dr.N.MAHESH Assistant Professor – III Department of Chemistry & Biosciences SASTRA University Srinivasa Ramanujan Centre, Kumbakonam, Thanjavur Dist, Tamilnadu, INDIA
Honorable Member	Dr.Sumit Kumar Gupta Dean of Science, Department of Physics, Parishkar College of Global Excellence, Jaipur, Rajasthan,India
Honorable Member	PRAKASH.M Professor, Department of Genetics and Plant Breeding, Faculty of Agriculture, Annamalai University, Annamalai nagar- 608002. Cuddalore District.

# **Indian Journal of Natural Sciences (IJONS)**

 Volume VIII (8)
 August 2017

 CODEN: IJONS (43) (2017)
 Issue 43
 ISSN: 0976 - 0997

S. No.	CONTENTS	Page No.
	Editorial	
1	Arecanut Mediated Facile Green Synthesis of Highly Stable Cuo Nanoparticles and their Characterization Studies Hema Prabha.P and T.V.Ranganathan	12564-12575
2	Variations of Rectal Temperature Following Treatment with Intravenous Bacterial collagenase Therapy on RFM in Cows Mohan P, Krishnakumar K, Kulasekar K, KarthickeyanSMK, MuruganM and Cecilia Joseph.	12576-12580
3	Land Use/ Land Cover Mapping With Change Detection Analysis of Walayar Watershed Using Remote Sensing and GIS M.Balakrishnan and A.Ilanthirayan	12581-12588
4	Different Bio-Chemical Parameters Following Treatment with intravenous Bacterialcollagenase Therapy on RFM in Cows Mohan P, Krishnakumar K, Kulasekar K, Karthickeyan SMK, MuruganM and Cecilia Joseph	12589-12597
5	Diagnostic Characteristics of Double Intussusception in A Non Descript Dog Pramod U., Sooryadas S., Dinesh P.T., Jinesh Kumar N.S., Bipin K.C., John Martin K.D. and Syam K. Venugopal	12598-12602
6	Multi-Residue Analysis (Gc-Ecd) of Some Organochlorine Pesticides in Commercial Broiler Meat Marketed in Bengaluru City, Karnataka Lokesha L.V , Jagadeesh S.Sanganal, Shridhar N.B, Rao, K.S, H.D.Narayanaswamy, Girish KumarV, Ranjith. D and Yogesh Gowda	12603-12607
7	Effects of Bio-Organic Fertilizer on Evaporation under Different Saline Soils YJ Zhang , TT Chang , QX Zhang , XH Shao ,H Ye, ZY Zhang , JZhang	12608-12617
8	Estimation of Initial Moisture Content of Agricultural Productsby an ASTM Experimental Procedure Gone Rajasheker and Chandramohan V.P	12618-12622
9	Resumption Of Ovarian Cyclical Activity in Post-Partum Malabari Goatsbytrans-Rectal Ultrasonography and Serum Progesterone Assay Neethu M., Leeba Chacko, K.Promod, Hiron M. Harshan and Shynu M.	12623-12628
10	Physical Characteristics of Lochial Discharge in Post-Partum Vechur Cows M.S.Meenuja, C.P. Abdul Azeez, K.Promod, K.Magnus Paul and Bindya Liz Abraham	12629-12634
11	Assessment of Spatial Variability in Soil Properties of Arumbanur Tank Command of Madurai through GIS Technique Indirani.R, V.E.Nethaji Mariappan and M.Anbarasu	12635-12641
12	Effect of Neutrons Irradiation on the Microstructure Properties of $Hg_{1-x-y}$ $TI_xPb_yBa_2Ca_2Cu_3O_{8+\delta}$ for $(0\le x\le 0.4)$ and $(0\le y\le 0.4)$ System Ghazala.Y.Hermiz , Maysoon F.A.Alias and Bushra A.Aljurani	12642-12650

13	Effect of Anti-Stress Supplements on Hemato-Biochemical Blood Profiles in Early Weaned Piglets Vijin.V.L, Balusami.C, John Abraham, RohinAnie Jose and SenthilMurugan	12651-12654
14	The Impact of Transformational Leadership on Job Satisfaction of the Northern Border University Academic Staff Mohamed Eid Kilase Ajoud and Tahar Jouili	12655-12667
15	A Comparative Study on the Diversity of Ornamental Fishes of Hirakud Reservoir to that of Cuttack Region on the Mahanadi River in Odisha and their Socio-Economic Benefit to the Livelihood of the Fishers' of these Regions Tarun Kumar Singh, Bhikari Charan Guru and Saroj Kumar Swain	12668-12679
16	Haematology and Serum Biochemistry of Captive Adult Male Bonnet Macaques ( <i>Macaca radiata</i> ) Under Midazolam-Ketamine Anaesthesia after Haloperidol Premedication K.S.Kamalesh Kumar, George Chandy, S.Sooryadas, John Martin, P.M.Deepa, Binoy C. Babu and C.Sunanda	12680-12687
17	The Role of University in the Community Service: Evidence from the Northern Border University Naif Fawzi Alruwaili and Mohamed Eid Kilase	12688-12699

#### Editorial.....



#YouthDay #Youth4Peace #ActOn2250

Every year, the 12th of August sees the commemoration of International Youth Day. Celebrations are organized each year to support the Day as a way to promote better awareness of the **World Programme of Action for Youth**.

A theme for the day is selected with input from youth organizations and members of the UN Inter-Agency Network in Youth development. It also organizes a commemoration of the Day at United Nations Headquarters in New York. The Programme encourages youth around the world to organize activities to raise awareness about the situation of youth in their country. The theme for 2017 is "Youth Building Peace."

Since the adoption of Security Council Resolution 2250 in 2015, there is growing recognition that as agents of change, young people are critical actors in conflict prevention and sustaining peace. International Youth Day 2017 is dedicated to celebrating young people's contributions to conflict prevention and transformation as well as inclusion, social justice, and sustainable peace.

The current generation of youth are the largest in history and young people often comprise the majority in countries marked by armed conflict or unrest, therefore considering the needs and aspirations of youth in matters of peace and security is a demographic imperative.

Naturally yours
Vijikumar Sahadevan
Editor in Chief,IJONS

Source: UNO