

INDIAN JOURNAL OF NATURAL SCIENCES (IJONS)

Editor-in-Chief
Dr.S.Vijikumar

Published by

TAMILNADU SCIENTIFIC RESEARCH ORGANISATION

Regd. Off. : NO 46-141, MEENAKSHIPURAM RD, NEAR POST OFFICE, ARIMALAM 622 201,
PUDUKKOTTAI, TAMIL NADU, INDIA

Admin. Off. : 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	<p>Dr.S.Vijikumar Director TamilNadu Scientific Research Organisation Pudukkottai-622003, Tamil Nadu. India.</p>
Editorial Committee	
Honorable Chief Advisor	<p>Prof. Dr.V.Ramaiyan Marine Biologist Research Advisor Sri Venkateswara College of Arts & Science. Peravoorani, Thanjavur. Tamil Nadu. India.</p>
Honorable Chief Advisor	<p>Dr.C.Anandharamakrishnan Director, Indian Institute of Food Processing Technology (IIFPT) Ministry of Food Processing Industries (MoFPI), Govt. of India Pudukkottai Road, Thanjavur - 613005, Tamil Nadu, India</p>
Honorable Chief Advisor	<p>Dr. B. Vaseeharan Professor and Head, Department of Animal Health and Management, Alagappa University, Karaikudi – 630003</p>
Honorable Chief Advisor	<p>Prof.Mahdi Vatan Parast Chancellor & Professor, Islamic Azad University, Quchan Branch,Quchan-Khorasan Razavi- Iran.</p>
Honorable Chief Advisor	<p>Prof.Dr.Hamid Saremi Vice- Chancellor, Islamic Azad University, Quchan branch, Quchan-Iran.</p>
Honorable Chief Advisor	<p>Dr. Sr.D.Victoriya Amalorpava Mary, FBS Principal, Bon Secours College for Women, Vilar bypass road, Thanjavur - 613 006. Tamilnadu, South India.</p>
Honorable Chief Advisor	<p>Prof.Dr. B.A. ASBI Vice President Research, Management & Science University(MSU), University drive off persiaran olahraga, 40100 shah alam selangor , MALAYSIA.</p>
Honorable Member	<p>Dr. N. Jayabalan Professor & Head, Dept. of plant Science, School of life Sciences Bharathidasan University, Tiruchirappalli. Tamil Nadu. India.</p>
Honorable Member	<p>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.</p>
Honorable Member	<p>Dr.S.P.Subramaniyan Asst.Controller of Patents and Designs (Govt.of India) Patent Office, IPR Building, GST Road, Guindy, Chennai 600032</p>

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	Dr.M.Krishnan 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 ,TN. 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	Dr. K.Madhava Chetty Plant Taxonomist, Assistant Professor,Department of Botany, SVUCS,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 Joshua 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,TamilNadu,India.
Honorable Member	Dr.Jaivel N Post Doctoral Fellow, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore - 641 003,TamilNadu,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	Dr.V.Sakthirama 3/8,P Block,Sree Dakshaa-Vhridhaa Bharthiyar University Post,Coimbatore-641046 TamilNadu,India.
Honorable Member	Dr.M.Kiruba 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, Kudumiyamalai,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, Kudumiyamalai,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	Dr.Prakash.M Professor, Department of Genetics and Plant Breeding, Faculty of Agriculture, Annamalai University, Annamalai nagar- 608002. Cuddalore District.
Honorable Member	Dr.B.A.Asbi Prof., Vice President Research, Management & Science University(MSU), University drive off persiaran olahraga, 40100 shah alam selangor. MALAYSIA.
Honorable Member	S.M.Prasad Assistant Professor, Department of Nutrition and Dietetics, Sadakathullah Appa College, Rahmath Nagar,Tirunelveli-627011. T.N.India
Honorable Member	K.Rajendran Research Associate Directorate of CARDS, TNAU,Coimbatore-3
Honorable Member	Dr.Kayalvizhi.K Senior Research Fellow Institute of Agriculture, Kumalur-621712,Lalgude(TK) Trichy. TamilNadu
Honorable Member	Dr.P.Jeyaseelan Associate Prof., Department of Agricultural Extension, Faculty of Agriculture, Annamalai University, Annamalai Nagar – 608 002 Cuddalore
Honorable Member	Dr.Suja George Principal Scientist, Department of Biotechnology, M.S. Swaminathan Research Foundation, Taramani, Chennai 600113.
Honorable Member	Dr.Neelesh Sharma ICAR-International Fellow & NAAS Associate Division of Veterinary Medicine, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agri. Sciences & Technology, R.S. Pura, Jammu-181102 (J & K) INDIA.
Honorable Member	Dr.Tapas Ranjan Das Head (Acting), IARI Regional Station, Pusa Samastipur -848125,Bihar, India
Honorable Member	Dr.Muthuraman A., Assistant Professor, JSS College of Pharmacy, JSS University, Mysuru -570 015. Karnataka,India..

Honorable Member	Dr.G.Rama Rao Principal Scientist &Head, Dept.of Crop Physiology, RARS Lam, Guntur-522034, ANGR Agricultural University, Andhra Pradesh,India.
Honorable Member	Dr.A.S.Kanagalakshmi Professor, Dept. of Civil Engineering, Panimalar Engineering College Chennai 600123. Tamilnadu,India.
Honorable Member	Dr.M.Ramarao Associate Professor, Department of Mechanical Engineering, Holy Mary Institute of Technology & Science Hyderabad,Telangana 501301, Telangana, India.
Honorable Member	Dr.Y.V. Krishna Reddy Department of Agricultural Engineering, Aditya Engineering College, Surampalem- 533437, East –Godavari, A.P., India
Honorable Member	Dr.Komal Kumar Javarappa Institute of Molecular Medicine Finland, University of Helsinki, Finland, Biomedicum Helsinki 2U, G315b, Finland- 00014.
Honorable Member	Dr.Easwari.S Asst.Professor, J.K.K. Munirajah College of Agricultural Science, T.N.Palayam, Erode Dist.,TamilNadu, India.
Honorable Member	Dr.Manigopa Chakraborty Chief Scientist cum University Professor Department of Genetics & Plant Breeding, Birsa Agricultural University, Kanke, Ranchi, Jharkhand – 834006., India.
Honorable Member	Dr.Arvind Prasad Dwivedi Lecturer, Department of Chemistry, Govt. Sanjay Gandhi Smriti College, Sidhi, Madhya Pradesh, India.
Honorable Member	Dr.M.N.Harisha Guest Lecturer, Department of Wildlife and Management, Kuvempu University, Jnanasahyadri, Shankaraghatta - 577451. Shimoga
Honorable Member	Dr.R.Rajkumar Senior Scientist, Village Resource Centre M S Swaminathan Research Foundation Pudukkottai,TamilNadu,India.
Honorable Member	Dr.Vidyalakshmi G M Division of Veterinary Physiology , CSM Lab, ICAR- IVRI, Izatnagar, Bareilly, Uttar Pradesh – 243 122. India.

Honorable Member	Dr.N.Shruthi Division of Animal Biochemistry, ICAR- IVRI, Izatnagar, Bareilly, Uttar Pradesh – 243 122. India.
Honorable Member	Dr.S.Deepa PGT Biology, G.K.Shetty Vivekananda Vidyalaya Junior College, Ambattur, Chennai – 600053. Tamil Nadu, India
Honorable Member	Dr.A.Suganya Research Scholar, Department of Agricultural Science, Tamil Nadu Agricultural University, Coimbatore
Honorable Member	Dr. N. Jeyapandiyan Research Associate, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore.
Honorable Member	Dr.R.Selvaraj Associate Professor, Department of Veterinary Physiology, Centre for Laboratory Animal Technology & Research (CPCSEA approved), Sathyabama University, Chennai – 600 119.
Honorable Member	Dr.V.Karthika Senior Research Fellow, Department of Environmental Science, Water Technology Centre, Tamil Nadu Agricultural University, Coimbatore – 641 003.
Honorable Member	Dr.M.Karthikeyan Assistant Professor (Plant Pathology) Department of Vegetable Crops ,HC&RI Tamil Nadu Agricultural University ,Coimbatore TamilNadu,India
Honorable Member	Dr.K.Rajendran, Research Associate, Directorate of CARDS, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu,India.
Honorable Member	Dr. V. Janahiraman Assistant Professor (Agricultural Microbiology) Krishna College of Agriculture and Technology, Srirengapuram -625532, Usilampatti, Madurai-Dt Affiliated by Tamil Nadu Agricultural University. Tamil Nadu, India.
Honorable Member	Dr.A.Mahadevan Assistant Professor,Dept. of Horticulture, Krishna College of Agriculture and Technology, Srirengapuram -625532, Usilampatti, Madurai-Dt. Tamil Nadu, India

Honorable Member	Dr.A.Manikandan Principal, Muthayammal Memorial College of Arts and Science, Rasipuram, Namakkal Dist – 637408. Tamil Nadu, India.
Honorable Member	Vijaya Bhaskara Reddy.MUTHA Asst. Prof.Faculty of Public Health, St Theresa International College, 1 Moo 6 Rangsit-Nakhon Nayok Road (Klong 14), Bungsan,Ongkharak – 26120 Nakhon Nayok, Thailand.
Honorable Member	Dr. R.Mary Suja Director, Williams Research Centre, Nagarcoil – 1 Kanyakumari Dist,Tamil Nadu, India
Honorable Member	Dr. P. Chandramani Professor, (Agricultural Entomology), Agricultural College and Research Institute, Tamil Nadu Agricultural University Kudumiyamalai – 622 104. Pudukkottai Dist., Tamil Nadu, India
Honorable Member	Dr. Hasan S.A. Jawad Animal Production Department, Agricultural Faculty, University of Baghdad, Baghdad,Iraq
Honorable Member	Dr. S. Suganya Kanna Assistant Professor, (Agricultural Entomology), Agricultural College and Research Institute, Tamil Nadu Agricultural University. Kudumiyamalai – 622 104. Pudukkottai Dist., Tamil Nadu, India
Honorable Member	Dr. D. Balasankar Horticulture Officer, Farmer Training Centre, O/o Joint Director of Horticulture, Udhagamandalam -643001. The Nilgiris, Tamil Nadu, India.
Honorable Member	Dr. Ali Abdel-Hadi Mahoud Alsudani Assistant Professor in College of Science Biology Department, University of Al-Qadisiyah, Iraq.
Honorable Member	Dr. M. Manikandan Senior Research Fellow, Tamil Nadu Agricultural University Coimbatore – 641003. Tamil Nadu, India.

Honorable Member	Neeta Raghveer Assistant Professor, National College Autonomous, Basavanagudi, Bengaluru Karnataka,India
Honorable Member	Dr. Salam Hussein Ewaid Shatra Technical Institute Southern Technical University, Iraq.
Honorable Member	Dr.S.Prema Associate Professor of Computer Science K.S.Rangasamy College of Arts and Science (Autonomous) Tiruchengode – 637 215, Tamilnadu, India
Honorable Member	Dr.S.Sasikala Associate Professor, Department of Computer Applications, Hindusthan College of Arts and Science, Coimbatore - 641 028, Tamilnadu, India.
Honorable Member	Dr. Ghaidaa Raheem Lateef Al-Awsi Al-Mustaqbal University College, Babylon,Iraq.
Honorable Member	Dr.C.Ravinder Singh Head, PG and Research Department of Botany, Vivekanandha College of Arts and Sciences for Women, Elayampalayam- 637 205, Tiruchengode, Namakkal,Tamil Nadu, India.
Honorable Member	Dr. S. Thenmozhi Assistant Professor (SS & AC) Soil Fertility and Irrigation Water Management Agricultural College and Research Institute, Kudumiyanmalai - 622 104, Pudukkottai – District, Tamil Nadu,India
Honorable Member	Dr. Salwan Ali Abed Department of Environment College of Science University of Al-Qadisiyah, Iraq.
Honorable Member	Dr.G.Rajaraman Assistant Professor & Coordinator School of Agricultural and Processing Sciences Kalasalingam Academy of Research and Education Krishnankoil-626126, Tamilnadu. India.
Honorable Member	Dr.S.Alagumanian Head & Assistant Professor, PG &Research Dept. of Botany H.H. The Rajash's Collage, Pudukkottai, Tamilnadu, India
Honorable Member	Dr. Faiza Kadhim Emran Department of Biology, College of Science, University of Baghdad, Baghdad, Iraq.

Honorable Member	Dr.N.Vasanthakumar Librarian, The American College, Madurai – 625 002, Tamilnadu, India
Honorable Member	Dr.Nagubudi. Varadarajulu Naidu Director of Research, Acharya N.G Ranga Agricultural University, Administrative Office, RARS, Lam, Guntur -522034 Andhra Pradesh, India.
Honorable Member	Dr. Ahmed Mahmood Shukur AL-Nedawi Assistant Professor, Animal Resource Department, Faculty of Agriculture, University of Baghdad, Baghdad, Iraq
Honorable Member	Dr.Thirumal Kumar D Assistant Professor(Jr) Department of Integrative Biology, School of Bio Sciences and Technology Vellore Institute of Technology Vellore – 632014, Tamilnadu, India
Honorable Member	Dr.R.Jayapandi Assistant Professor, Department of Bio Chemistry, The American College, Madurai – 625 002 Tamilnadu, India
Honorable Member	Dr.C.Ravindran Assistant Professor (Horticulture) Department of Fruit Crops Horticulture College and Research Institute Periyakulam – 625 604, Theni District, Tamilnadu, India.
Honorable Member	Wejdan Thamir Mahdi University of Qadisiyah, Iraq
Honorable Member	Dr.K.F.Bharati Assistant Professor, Department of Computer Science and Engineering, JNTUA College of Engineering, Ananthapuramu - 515002, Andhra Pradesh, India.
Honorable Member	Dr.Huda Falah Hasan Radi Alqaraghuli Assistant Professor, College of Veterinary Medicine, University of Baghdad, Baghdad, Iraq.
Honorable Member	Dr.S.V.Sai Prasad Principal Scientist & Head ICAR-IARI, Regional Station, Near Agriculture College, Indore – 452 001, Madhya Pradesh, India
Honorable Member	Dr. Intedhar Abbas Marhoon Biology Department, Faculty of Science, University of Al-Qadisiyah, Iraq
Honorable Member	Dr.Omkar Prasad Baidya Assistant Professor, Department of Physiology, ESI-PGIMS and ESIC Medical College, Joka, Kolkata, West Bengal, India

Honorable Member	Dr.Reem Zuhair Shaker Abdul Rahman Shanshal Assistant Professor in Life Sciences, College of Education for Girls, University of Mosul, Iraq.
Honorable Member	Dr.V.Kavitha Associate Professor, PG and research Department of Computer Application, Hindusthan College of Arts and Science, Coimbatore -28, Tamilnadu, India
Honorable Member	Dr. Preethi Balasundaram Post-Doctoral Fellow, Wieden Group Alberta RNA Research & Training Institute Department of Chemistry and Biochemistry University of Lethbridge, 4401 University Drive Lethbridge, Alberta, Canada T1K 3M4
Honorable Member	Dr. Vikas Sharma Associate Professor/Sr. Scientist (Agronomy) Regional Agricultural Research Station SKUAST-JAMMU, Tandwal-Rajouri, Teh. And District Rajouri, State Jammu and Kashmir, India
Honorable Member	Dr.C.Vijai Assistant Professor, Department of Commerce, St.Peter's Institute of Higher Education and Research, Avadi, Chennai-600 054, Tamil Nadu, India
Honorable Member	Dr. Gopal Muthu Scientist -'C' DHR-Model Rural Health Research Unit ICMR-National Institute of Epidemiology Government of India, Primary Health Centre Campus Kallur-627 010, Tirunelveli District, Tamil Nadu, India
Honorable Member	Dr.N.Revathy Associate Professor, PG and research Department of Computer Application, Hindusthan College of Arts and Science, Coimbatore -28, Tamilnadu, India
Honorable Member	Dr.M.Ananthi Teaching Assistant, Directorate of Planning and Monitoring, Tamil Nadu Agricultural University, Coimbatore – 03, Tamilnadu, India.
Honorable Member	Dr.Pushpa S Murthy Senior Scientist, Department of Spice and Flavor Science AcSIR Associate Professor (Biological Sciences), CSIR - Central Food Technological Research Inst. MYSURU, Karnataka, INDIA
Honorable Member	CH.V.Satyanarayanaraju Scientist, Research Centre Imarat, DRDO Hyderabad, Telangana, India

Honorable Member	<p>Dr. Vickram A S Associate Professor, Department of Biotechnology Saveetha School of Engineering Saveetha Institute for Medical and Technical Sciences Chennai, Tamilnadu, India</p>
Honorable Member	<p>G.Menaka Assistant Professor, Computer Science Cum Deputy Controller of Examinations Vivekanandha College Of Arts & Sciences For Women (Autonomous), Elayampalayam, Tiruchengode, Namakkal (Dist.), TamilNadu, India</p>
Honorable Member	<p>Dr. Karthikeyan Rajamani Senior Research Scientist (Biomarker) ICMR Centre for Advanced study in Air pollution, Department of Environmental Health Engineering, Sri Ramachandra Institute of Higher Education and Research, Porur-600116, Chennai, TamilNadu, India</p>
Honorable Member	<p>Dr. P.Yasodha Assistant Professor (Agrl. Entomology) Anbil Dharmalingam Agricultural College & Research Institute, Tamil Nadu Agricultural University, Navalur Kuttapattu 620 027, Tiruchirappalli, Tamil Nadu, India.</p>
Honorable Member	<p>Dr. SAIKAT SEN Associate Professor Faculty of Pharmaceutical Sciences Assam down town University, Panikhaiti, Guwahati, Assam - 781026, India</p>
Honorable Member	<p>Dr.E.Selvarajan Research Assistant Professor Department of Genetic Engineering School of Bioengineering SRM Institute of Science and Technology Kattankulathur-603203, Chennai, Tamilnadu, India</p>
Honorable Member	<p>Dr.V.Shanmuga Sundaram Assistant Professor & Head Department of Statistics Mahendra Arts & Science College (Autonomous) Kalippatti, Namakkal-637501. Tamilnadu, India.</p>
Honorable Member	<p>Dr. J. Rajangam Professor and Head, Department of Fruit Crops, HC & RI, Periyakulam, Tamilnadu, India</p>
Honorable Member	<p>Dr.R.R.Saravanakumar Librarian & Head Department of Library and Information Science Sadakathullah Appa College (Autonomous) Rahmath Nagar, Tirunelveli, Tamilnadu, India</p>

Honorable Member	<p>Dr. Shivendu Ranjan Senior Research Associate Faculty of Engineering & Built Environment University of Johannesburg, Johannesburg (Auckland Park Kingsway Campus) South Africa</p>
Honorable Member	<p>Dr.Nagubudi.Varadarajulu Naidu Director of Research, Acharya N.G Ranga Agricultural University, Administrative Office, RARS, Lam, Guntur -522034, Andhra Pradesh, India</p>
Honorable Member	<p>Dr.I.Muthuvel Associate Professor (Horticulture), Department of Fruit Crops, Horticultural College and Research Institute, Periyakulam – 625 604, Theni Dist. Tamil Nadu, India</p>
Honorable Member	<p>Subburaj. M Deputy Director Food Safety and Standards Authority of India Ministry of Health and Family welfare, Govt. of India Benfish Tower, 31 GN Block, Sector V, Salt lake city Kolkata -700091, India</p>
Honorable Member	<p>Dr.Bhagyalakshmi Rajaram Associate Professor, Department of Management Studies, PSNA College of Engineering & Technology, Dindigul, TamilNadu, India</p>
Honorable Member	<p>Dr.S.Annapoorani Assistant Professor in Biotechnology, Dr.Umayal Ramanathan College for Women Karaikudi, Sivaganga (Dt), TamilNadu, India</p>
Honorable Member	<p>Dr Bhasker Sharma Homoeopathy Doctor Sharma Homoeopathy Chikitsalya and Research Center Itwa Bazaar, Dist-Siddharth Nagar, Pin-272192 Uttar Pradesh, India</p>
Honorable Member	<p>Dr.R.Parimalan Scientist (Agrl. Biotech) & Hon. Faculty (QAAFI, UQ), Division of Genomic Resources, ICAR-National Bureau of Plant Genetic Resources, PUSA Campus, New Delhi-110012</p>
Honorable Member	<p>Dr.P.Sivakumar Assistant Professor (Biotechnology) Agricultural College and Research Institute Tamil Nadu Agricultural University, Eachangkottai, Thanjavur, Tamil Nadu, India</p>

Indian Journal of Natural Sciences (IJONS)

Volume XII (12)		June 2021
CODEN: IJONS (66) (2021)		ISSN: 0976 - 0997
S. No.	CONTENTS	Page No.
	Editorial	
143	Cause and Effect of Phishing Attack Srivatsala V, ShivaLeela T and Ankita Hegde	31887-31893
144	A Deep Dive into the Challenges Faced in the Faster Delivery of Products by the Small and Medium It Firms In Bengaluru Sandhya Soman, Piyush Kumar Pareek, Veerana Kotagi and Shilpa Nayak	31894-31899
145	<i>Ricinus communis</i> : Alternative uses in Natural Farming Gayathri .G and Deepa.S	31900-31903
146	Assessment of Salt Water Intrusion in the Coastal Aquifer of Ponnaiyar River Basin, South India using Geographical Information System Ravindranath I.G and Thirukumaran V	31904-31910
147	A Study on the Correlation between Drug Information Queries and Incidence of Medication Errors in a Tertiary Care Hospital D. Joseph Stalin, R. Sanilkumar and R. Xavier Arulappa	31911-31916
148	Rumour Detection and Analysis in Social Media Suma S V	31917-31921
149	A Legal Study on Scientific Justifications under Sanitary and Phytosanitary Measures and Competence of India Ajay Raj Singh and Kuldeep	31922-31924
150	The Emerging Trend of Artificial Intelligence in International Arbitration: An Arbitration Law Analysis Shantanu Pachahara	31925-31930
151	Artificial Intelligence and Nanomedicine: Legal and Ethical Challenges in India Gagandeep Kaur and Rishabh Malhotra	31931-31937
152	Challenges in Named Data Networking Biru Rajak	31938-31942
153	Herbal Alternatives to Endodontic Therapy: A Review Bijay Raj Yadav and Pooja Kabra and Ekta Choudhary	31943-31950
154	Conducting Polymer as Active Layer for Sensors P. D. Gaikwad	31951-31954
155	Exploring the Interfaces between Artificial Intelligence and Intellectual Property Rights Faizanur Rahman and Mohd. Amir	31955-31963
156	Development and Organoleptic Evaluation of Gluten-Free Noodles after Reducing Their Anti-Nutrient Factors Luxita Sharma	31964-31976
157	Effect of Temperature on Extraction of Metals from Fly Ash by <i>Thiobacillus ferrooxidans</i> and <i>Pseudomonas fluorescens</i> Shaikh Shafikh, Iqbal Shaikh and Avinash Ade	31977-31982
158	Implication of E-Contracts and Blockchain Technology in Legal Domain: A Critical Analysis Shailendra Prasad Godiya and Anurag Singh	31983-31988

159	The Challenges of Artificial Intelligence (AI) in the Healthcare Sector Vighnesh Balaji	31989-31996
160	Morphological and Biochemical Facets of Arsenic Toxicity on <i>Vigna mungo</i> L Rupesh Kumar Jha, Illa C Patel and Jitendriya Panigrahi	31997-32008
161	Assessment of an Industrial Effluents and Heavy Metals Present in and Around Dindigul District A.Pandia Rajan, M.Durgadevi and M.S.Dheenadhayalan	32009-32014
162	Treatment for the Effective Removal of Heavy Metals from the Tannery Effluent by using Fly Ash from Thermal Power Plant V. Vanitha, N. Latha and A. Pandiarajan	32015-32022
163	Performance Evaluation of Activated <i>Saccharum officinarum</i> (Sugarcane Bagasse) as Natural Adsorbent used for Elimination of Pollutants in Automobile Service Station Waste Water Islamuddin, Monowar Alam Khalid, Syed Aqeel Ahmad and Mahtab Ahmad	32023-32036
164	An Approach for Secure Software Development Life Cycle in Small Software Firm Prakash Chandra Behera, Chinmaya Dash and Santosh Kumar Yadav	32037-32045
165	A Literature Review of Recent Generative Adversarial Network Architectures Kaushal Kishore Rao Mangalore and A. Rengarajan	32046-32054
166	A Review of Techniques for Extracting Knowledge to Develop Semantic Web of Things Applications Abdulaziz Fahad Saad Alothman, Thamer Abdullah Alhussain and Ahmed Abdullah Al – Mekhla	32055-32062
167	Lean Six Sigma in IT SME's for Software Process Optimization and Minimization of Wastes Chinmaya Dash Prakash Chandra Behera and Santosh Kumar Yadav	32063-32072
168	On Domination Number of Some New Types of Graphs Sarang Sadawarte, Sweta Srivastav and Sangeeta Gupta	32073-32076
169	A General Survey on Internet of Things (IoT) Tirtharaj Sapkota	32077-32081
170	DApp for Secure Cheque Exchange and Analysing using Remix-IDE Sheetal and G. Shanmuga Rathinam	32082-32088
171	Developing a Data Warehouse Framework for Public and Private Entities in the Kingdom of Saudi Arabia Abdulaziz Fahad Saad Alothman and Thamer Abdullah Alhussain	32089-32101
172	Intelligent Add-Ons using Voice Commands for Assisting Softwares T. Kohila Kanagalakshmi, Kruthika V, Supriya K L and K R Radhakrishnan	32102-32107
173	A Review of Applications of Machine Learning for Smart Farming Sarakutty T K, Srinivas Keerthi P S and Harsha B V	32108-32113
174	Adaptability to Virtual Learning Due To Onset of Pandemic COVID 19 –A Survey among Students Ashwini Diwakar and Rashmi Eshwar	32114-32117
175	Machine Learning Approach for Retinopathy Detection using Retinal Images Sharmila.G	32118-32124
176	Diagnosis of Diabetes Mellitus based on ABO-HELM Machine Learning Classifiers Thiyagarajan C and S. Gokila	32125-32131

177	Review on Advanced Image Compression Techniques: CS Image Compression RajashriPadaki and Netra Mirji	32132-32138
178	Cloud Computing and its Convergence with Mobile Computing and IoT applications Akshatha Deepak and Satyashree	32139-32146
179	A Survey of Health Care Data in Cloud Environment P. Suhasini and S. Kanchana	32147-32155
180	Review Towards Smart-Agricultural with IoT, Cloud and Data Mining Techniques O.Vishali Priya and R. Sudha	32156-32166
181	Detection and Classification of Diseased and Healthy Citrus Fruit using kNN Shreekanth K N Harisha Naik T and Suresha M	32167-32172
182	Core Level Spectra Prediction of Zinc Oxide using First Principles Method Arpita Patro, Satyanarayan Dhal and Subhasmita Mishra	32173-32175
183	Biomedical Image Compression using Convolutional Recurrent Neural Network & Long Short-Term Memory Ezhilan R, Baskar D and Vinod Kumar D	32176-32184
184	Synthesis, Characterization and Biological Applications of 4-(4 hydrazino-phenyl-diazenyl)-4h-(1, 2, 4) triazole-3, 5-dithiol and its Metal Complexes M.R. Archana, K.H. Shivaprasad, K.G. Shilpa and B.K. Ishwari	32185-32191
185	Electron Transport Simulation for Hydrogen Electrodes in a Rubidium Island Arpita Patro, Satyanarayan Dhal and Subhasmita Mishra	32192-32194
186	Finger Knuckle Print as a Biometrics Trait for Personal Authentication Murali G, Baskar D and Vinod Kumar D	32195-32206
187	Prediction of Thermodynamic Properties of Cadmium Selenide using Density Functional Theory S. Dhal	32207-32210
188	Synthesis, Characterization and Antimicrobial Studies of some Novel Azo Schiff Base Metal Complexes Derived from the Drug, Trimethoprim K.G. Shilpa, K.H. Shivaprasad and M.R. Archana	32211-32220
189	Tongue Print as a Biometrics Trait for Personal Authentication Kannan S, Baskar D and Vinod Kumar D	32221-32230
190	Analysis of Shoulder Performance and Physiotherapy Acceptance in Tennis Players: A Qualitative Survey Study Parth Trivedi, Ruchir Patel, Minita Mori and Nidhi Panchal	32231-32240
191	A Comparative Study on Cloud Computing and Edge Computing with its Applications S.Chithra Devi and D. Maheswari	32241-32247
192	Gut Microbiota-Brain Interaction with Special Reference to Alzheimer's Disease Neha Sharma, Pallavi Singh Chauhan, Vikas Shrivastava and Rajesh Singh Tomar	32248-32255
193	<i>In vitro</i> Evaluation of Anti-Alzheimer's Efficacy and Safety Assessment (In Zebra Fish) of Marine Brown Alga, <i>Sargassum wightii</i> Greville Ex J. Agardh Selvendran Thamaraiselvan and Arif Nisha Syad	32256-32266

194	Determination and Devaluation of Chloride Present in the Tannery Effluent using Silver Nanoparticles Arputharaj. A and Anbarasu. P	32267-32274
195	A Comparative Seasonal Anatomical Analysis of Stem of <i>Cynodon dactylon</i> - A Herbal Plant Bhoomi Panchal and Mayuri C. Rathod	32275-32279
196	Physical and Chemical Mutagenesis in <i>Hibiscus sabdariffa</i> L. to Induce Variability on Seed germination, Survival and Lethal Dose. D Priyanka and D Dhanavel	32280-32284
197	Secondary Metabolites and <i>In vitro</i> Anti-Inflammatory Potential of <i>Priva cordifolia</i> (L.F) Druce Umamaheswari P and Geetha N	32285-32294
198	Solar and Wind Hybrid Power Generation System for Street Lighting Ritesh Ujwane*, Sanket pardhi, Deepali amate, Shrutika shuddhalwar, Vaibhav borkar, Angat bakshi and Roshan kamble.	32295-32300
199	A Computational Approach to Understand the Analysis of <i>Sansevieria trifasciata</i> Phytochemicals against Nicotine-Induced Lung Cancer S. Kathiravan A. Sherlin Rosita, A. Anita Margret and P. Thirumalai Vasan	32301-32308
200	Electrochemical Studies and Surface Characterization of Dipropyl Sulphide on Zinc Metal in 0.5N Hydrochloric Acid A. Samsath Begum, S. Karthikeyan, S. S. Syed Abuthahir, M. Raja and M. Pandeewaran	32309-32323
201	Press and COVID-19 Pandemic: An Analysis of the News Coverage of Indian English Newspapers Avneesh Kumar and LakhanRaghuvanshi	32324-32329
202	Green Criminology Umbrella: A Concern on Green Crimes and Ecological Issues Mahmood Khan Yousufi and Narendra Kumar Thapak	32330-32337
203	Analysis of Stress Urinary Incontinence and Awareness of Physiotherapy in Recreational Female Athletes: A Survey Parth Trivedi, Nidhi Panchal, Ruchir Patel and Minita Mori	32338-32345
204	Seed Priming: An Effective Approach to Improve Seed Germination and Abiotic Stress Tolerance Raghvendra Saxena, Manish Kumar and Rajesh Singh Tomar	32346-32357
205	RP-HPLC Method Development and Validation for Estimation of Rivaroxaban in Pharmaceutical Dosage Forms M.Kumar and K.Nanjappan	32358-32364
206	Occurrence and Species Diversity of Butterflies in Southern Part of Eastern Ghats (Pachamalai Hills) Jainul Yasmin. J, Dinesh Raja. J, Athif P, Sadiq Bukhari A, Syed Mohamed H. E and Melba Priyadharshini A	32365-32370
207	Evaluation of Antimicrobial Activity of Ethanolic Extract of <i>Quisqualis indica</i> Linn. Gomathi Venkatachalam and Jaykar Balasundaram	32371-32376

Editorial

"Yoga: the Science of Holistic Health"

Yoga is an ancient physical, mental and spiritual practice that originated in India. The word 'yoga' derives from Sanskrit and means to join or to unite, symbolizing the union of body and consciousness. Yoga is a powerful tool to deal with the stress of uncertainty and isolation, as well as to maintain physical well-being. Yoga is an in-depth, wholistic, science of man and indeed the only science that deals simultaneously with all aspects of the philosophy, psychology and practicality of conscious evolution. Yoga enables us to search the depths of our own self thus realising the ultimate truth of reality through an experiential model. Yoga is the best way for us to regain our birthrights and attain the goal of our human existence. Today it is practiced in various forms around the world and continues to grow in popularity.



The International Day of Yoga aims to raise awareness worldwide of the many benefits of practicing yoga. UNICEF says kids can practice many yoga poses without any risk and get the same benefits that adults do. These benefits include increased flexibility and fitness, mindfulness and relaxation. To live through this lockdown & pandemic period, yoga is the best thing to adopt as a lifestyle habit. During this Covid 19 pandemic yoga helps us build a strong physical, mental and spiritual health system by ancillary supporting therapy. When combined with breathing and meditation, it acts as the best element to take care of our mind, body and soul. There are different forms of yoga that can help us to stay physically strong and mentally balanced.

Please follow..... **Social Distance..... Frequent Hand Washing.....Wear Mask.....**

IJONS

CREDIT :UNO