

INDIAN JOURNAL OF NATURAL SCIENCES (IJONS)
BIMONTHLY INTERNATIONAL JOURNAL (PRINT)

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. : PLOT NO 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)".

JOURNAL PARTICULARS

Journal Name	INDIAN JOURNAL OF NATURAL SCIENCES (IJONS)
Frequency	Bi-monthly (Feb, Apr, Jun, Aug, Oct, Dec)
ISSN	0976 - 0997
Publisher	TamilNadu Scientific Research Organisation , Pudukkottai, Tamil Nadu, India
Chief Editor	Dr.S.Vijikumar
Copy right	TamilNadu Scientific Research Organisation (TNSRO) Pudukkottai, Tamil Nadu, India.
Starting Year	2010
Subject	Multi Disciplinary Science Subjects
Language	English
Publication Format	Print
Phone No:	04322-261088
Email	ijons@tnsroindia.org.in & ijonstnsro@gmail.com
Mobile No.	9952886637, 8778365515
Website	https://www.tnsroindia.org.in/
Registered office Address	No 46-141, Meenakshipuram Rd, Near Post Office, Arimalam 622 201, Pudukkottai, Tamil Nadu, India.
Admin. Office Address	Plot No 39, Mura Bhavan, Koodal Nagar, Rajagopalapuram Post, Pudukkottai, Tamil Nadu, India.

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. Rajashekhhar 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, Gnanaganagar,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 Karupiah 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-Vhiridhaa 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 TamiINadu,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 Raghuv 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, Kudumiyamalai - 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)		December 2021
CODEN: IJONS (69) (2021)		ISSN: 0976 - 0997
S. No.	CONTENTS	Page No.
	Editorial	
87	Fuzzy Ranking Game Problem solving by using Dominance Principle with Fuzzy Triangular Numbers S.Punitha	35940-35944
88	A Study to Assess the Knowledge Regarding Prevention of Domestic Violence among Adolescent Girls at Selected Higher Secondary School, Salem A.Prabhakaran and V.Selvanayagi	35945-35949
89	Regulatory Aspects in New Drug Application (NDA)-A Review Jameela Helen Jacob and R. Margret Chandira	35950-35963
90	Modified Spatial Attention Generative Adversarial Networks for Cloud Removal in Optical Remote Sensing Images Jaya Saxena, Anubha Jain and P Radha Krishna	35964-35974
91	Classification of Covid-19 using Deep Neural Network Benaki Lairenjam and Yengkhom Satyendra Singh	35975-35980
92	Design, Development and Evaluation of a Model System for Teaching and Learning Mechatronics Rolan A. Sulima, James M. Dumaguit and Adriano V. Patac, Jr	35981-35989
93	Novel Technology of Plant Extraction in Pharmaceutical Sector P. Palanisamy, Phagalavan.M, B.S. Venkateswarlu, Nagasubramanian. V.S and R. Margret Chandira	35990-35999
94	An Empirical Study of Data Mining Techniques in Agriculture Influencing Soil and Weather Factors S.Krithika and T.A.Sangeetha	36000-36008
95	Simultaneous Estimation and Validation of Paracetamol, Cetirizine Hydrochloride and Phenylephrine Hydrochloride Inbulk and Tablet Dosage Form by using Different Spectrophotometric Method M. Kumar and Sunil D. Kolhe	36009-36016
96	Insolvency and Bankruptcy (Amendment) Act, 2021- Integration and Analysis of Recent Literature Neeti Goyal and Maryam Ishrat Beg	36017-36023
97	Advanced Preservation Fresh Freeze Technology used for Medicinal Plants P. Palanisamy, Gowtham Pradeep.T, B.S. Venkateswarlu, Nagasubramanian. V.S and R. Margret Chandira	36024-36033
98	Combined Effect of Chest Physiotherapy along with Abdominal Exercise on Peak Expiratory Flow Rate and Oxygen Saturation in Upper Abdominal Surgery Patients- A Randomised Controlled Clinical Trial Study P.S. Mani Arasi, V.P. Hathila and D. Jayaprakash	36034-36040
99	Study of Achievement Motivation on the Performance of Swimming Athletes Kritika Khandelwal, Bhawna Chahar and Pradeep Singh Chahar	36041-36046
100	Automatic Generation Control Parameter Tuning Strategies for an Interconnected Reregulated Power System with Hydrogen Aqua Electrolyser Unit S.Solarajan, N.D. Sridhar and I.A. Chidambaram	36047-36059

101	Microneedles: A Clever Techniques with Developed Drug Delivery System S. Ravikumar and R. Margret Chandira	36060-36068
102	Review on Dental Caries V. Muruganatham, Vanita D.Revankar and A . Murali	36069-36080
103	Study and Investigation of a Jet Fighter Aircraft Siva V	36081-36086
104	Toxicological Profiling of New Chemical Entity- A Review S.Ruby, P.Soniya, S.Prathap, M.Kumar and B.S. Venkatswaralu	36087-36096
105	Development and Evaluation of Mouth Dissolving Tablets of Efonidipine using Solid-Dispersion S. Ravikumar and R. Margret Chandira	36097-36106
106	GST- Boon or Bane for Various Business Segments: A Study Assessing the Impact of GST on Manufacturer, Trader and Service Provider Renu Choudhary and Daisy Kurien	36107-36114
107	Review on List of Drugs Failed in Clinical Trial J.Loganathan, M.Priya, S.S.Sathees Kumar, H.Thajudeen and J.S.Jimson Raj	36115-36130
108	Mother Tongue as the Medium of Instruction: Towards Effective Implementation of NEP 2020 Ritu Bakshi	36131-36136
109	A Review on Clinical Trails Jameela Helen Jacob and R. Margret Chandira	36137-36156
110	A Descriptive Study on FDC Drugs by Prescription Auditing in General Medicine Department of Tertiary Care Hospital using Anatomical Therapeutic Classification and Defined Daily Dose Concept Mohamed Yasir Arafath A.A, Rangabashyam S.R, Ashly Mol Kurian, Chandravadhani J, Gajapriya B and Surendar A	36157-36164
111	A Review on Pharmacological Models and Traditional Herbs for the Treatment of Mood Disorders Eldhose M. J, Kothai Ramalingam and Arul Balasubramanian	36165-36171
112	Knowledge Regarding Utilization of Hand Sanitizer among Housewife in Selected Community, Salem. V.Selvanayaki and A.Thenmozhi	36172-36174
113	An Experimental Investigation and Analysis of AA2024 by GRA Method M Senthil Kumar, S Venkatesan, U Subhash and R Venkatesh	36175-36180
114	Antimicrobial Activity, Enzyme Production and Plant Growth Promoting Activity of <i>Bacillus megaterium</i> Isolated from Lichen <i>Parmotrema perlatum</i> Senthil Prabhu Sivasamy, Navami Krishna and Preethi Diana M	36181-36186
115	Development and Validation of Stability Indicating RP-HPLC Method for the Estimation of Cetrizine Hydrochloride, Phenylephrine Hydrochloride, Paracetamol from Bulk and Formulation Sunil D. Kolhe and M. Kumar	36187-36196
116	Influence on Compost and Industrial By-Products on Yield of Maize, Soil Microbial Population and Dehydrogenase Activity D. Venkatakrisnan, C. Dhayanithi, .K.Dhanasekaran, and V.Jaiganesh	36197-36204
117	Phytomass-Derived Activated Carbon: A Potential Material for Antibacterial Resistance Anvarsha Nazim, Kalyani Palanichamy, Vimali Elamathi and Varalakshmi Perumal	36205-36217

118	The Application of the Queuing Theory in a Vehicular Traffic Intersection Point, for Estimating and Optimization of Traffic Congestion in Dibrugarh, Assam Partha Protim Borthakur, Thuleswar Nath and Diganta Hatibaruah	36218-36229
119	Knowledge on Multiple Cystic Ovarian Syndrome among Adolescent Girls in Selected Rural Areas, Salem A.Thenmozhi* and K.Maheswari	36230-36232
120	Tramadol Induced Inhibition of the Testicular Activities in Male Albino Rats Preeti R.K., Somanath Reddy C. Patil, Liyakat Ahmad M.D and K. Vijaykumar	36233-36238
121	Mathematical and Stochastic Growth in Business and Industries V. Pavan Kumari, Venkataramana Musala, Putha. Viswanatha Kumar and M.Bhupathi Naidu	36239-36245
122	Optics of Crystals in Finsler Space Jitendra Singh	36246-36252
123	Bipolar Intuitionistic Fuzzy Matrices K.Lalitha and T. Dhivya	36253-36262
124	Validated RP-HPLC Method for the Determination of Fluticasone in Bulk and Tablet Dosage Form V.Navya and P.D.Chaithanya Sudha	36263-36271
125	Assessment of Disease Incidence and Virulence of <i>Sclerotium rolfsii</i> Sacc. Incited by Stem Rot of Groundnut (<i>Arachis hypogae</i> L.) A. Praveen and C. Kannan	36272-36280
126	Genetic Traits & Chromosomal Approaches in Anxiety Disorders Camila A Carlman and Bharat Mishra	36281-36288
127	A Study on Work-life Balance in Hotel Industry with Special Reference to Ahmedabad Arnaz Kaizad Wadia and Renu Choudhary	36289-36296
128	A Design of Two Sided Modified Complete Chain Sampling Plans TSMCCChSP-1 using Fuzzy Parameter P. Kavi Priya and A.R Sudamani Ramaswamy	36297-36306
129	To Study of the Different Influences of Color on Aspects of Human Behavior Smriti Agarwal and Raziya Shah	36307-36314
130	Study of Various Rare Earth Doped SrBi ₂ Ta ₂ O ₉ Ceramic for Device Applications G. K. Sahu, S. Behera and S.R. Mishra	36315-36319
131	Biosynthesis and Physicochemical Characterisation of Zinc Oxide Nanoparticles M.Chittrarasu and A.Shafie Ahamed	36320-36326
132	Human Wildlife Conflict Reduction Technology using YOLO Machine Learning Model S.V. Jansi Rani	36327-36333
133	Various Types of Somewhat Functions using δP_5 -Open Sets Vidhyapriya P and Sivakamasundari K	36334-36345
134	Status of Women Empowerment and Gender Equality in India-Challenges & Issues Pushpa Devi	36346-36349

135	The Kinetics of Oxidation of Fe(III)-Citrate by PMS G. Ragukumar and O. Nethaji	36350-36359
136	Relative Link Chain Routing based Congestion Control using Adaptive Deterministic Packet Marking Algorithm for Improving Energy Efficiency in MANET A.Ambeth Raja, S.Jayachandran and P.Krishnamoorthy	36360-36369
137	Influence of Weather Factors on Colony Growth of Indian Honey Bee, <i>Apis cerana indica</i> Fab. in Annamalainagar, Tamil Nadu, India T. Kavitha, C. Kathirvelu, N. Muthukrishnan and L. Gopianand	36370-36375
138	Design, Formulation, Optimization, Characterisation and Evaluation of Ramipril Loaded Seaweed Alginate – Natural Polysaccharides Composite Mucoadhesive Microspheres Annapoorani Arjunan, Saravanan Muniyappan, A Rahamathunisa, Kumar Mohan and B S Venkateswarlu	36376-36386
139	Screening on Lipid Peroxidation and <i>In vivo</i> Antioxidant Activities of Various Extracts of <i>Cadaba farinosa</i> (Linn) Jambula Dinesh Babu and Venugopalan Santhosh Kumar	36387-36397
140	Plant Derived Anticancer Agents Used In India - A Review Priya Kurian, J. Banurekha, M. Kumar and BS. Venkateswarlu	36398-36410
141	An M/G/1 Queue with Second Optional Service and Deterministic Repair Times S.Vanitha	36411-36423
142	Malathion Toxicity Induced Cytoskeleton Disruption: Implications on Cell Morphology and Behaviour of <i>Paramecium caudatum</i> Aditi Sunil Shere Kharwar, Supriya Singh-Gupta and Rashmi Pingle	36424-36430
143	India's Export Marketing Potentials of Palmyra Products K.Benittra and P. Venugopal	36431-36439
144	Effectiveness of Mindfulness Based Stress Reduction Programme on Psychosocial Wellbeing of Elderly People R.Naganandini ¹ and K. Maheswari	36440-36449
145	Copper Oxide Nanoparticles Synthesis using <i>Citrullus colocynthis</i> and its Antibacterial activity Jayaprabha T, Ravi S and Vennila T	36450-36455
146	Upshot of Polyherbal Formulation on Spatial Working Commemorative Performance in Diabetic Rats. V. S. Neharkar and A. A. Garud	36456-36462
147	Recent Updates on Antitubercular Discovery Vijayakumar B, J. Banurekha, M. Kumar and B.S. Venkateswarlu	36463-36475
148	Immunopathological Properties of the Enigmatic COVID-19 and Therapeutic Interventions against It: an Update Mayukh Hore and Subhrajyoti Roy	36476-36487
149	Effect of Yoga Practice in Hand Discomfort Caused by Mobile Phone Usage with its Correlation on Morphometry of Hand Senthil Kumar B , Ezhil Vendhan. K and Arjun C.V	36488-36495
150	Intuitionistic Fuzzy Contra Semi γ^* Generalized Continuous Mappings Abinaya M and Jayanthi D	36496-36501
151	Therapeutic Applications of Benzopyrans and its Analogues–An Over View D.Bharathi, P.Valentina and N.Ramalakshmi	36502-36509

152	Mass Segmentation in Mammogram using a Hybrid Approach based on Weighted Coefficient Adaptive Local Fitting Model Pramod B. Bhalerao and Sanjiv V. Bonde	36510-36519
153	Induced Breeding of Fringed Lipped Peninsula Carp, <i>Labeo fimbriatus</i> at Bhadra Fish Seed Farm, Karnataka: A Case Study H.M.Ashashree, B.R.Kiran and M.H.Nanjundappa	36520-36529
154	Fern Biodiversity of Phalgam, District Anantnag, Kashmir, India Aadil Farooq Shah and Kumarasamy D	36530-36540
155	Antimicrobial, Antioxidant Activity and Phytochemical Analysis of Lichen <i>Parmotrema perlatum</i> Senthil Prabhu S, Priyanka B, Nivedha P and Aasiya S	36541-36545
156	A Miniaturized Biosorption-Desorption Process for Removal of Pb (II) Ions from Wastewater Using Biosorbent of <i>Tectona grandis</i> Leaves Ankita Negi, R. Kumar, S. K. Joshi and N. S. Bhandari	36546-36559
157	Medical Errors in Clinical Care and Ethical Facets Priya Thomas, Pooja Latti and Badmanaban R	36560-36565
158	Review on Monoazaphenothiazine Analogues K.Premavathi, P.Valentina and N.Ramalakshmi	36566-36574
159	Challenges on <i>In-vivo</i> Culture and Recovery of Entomopathogenic Nematodes from <i>Galleria mellonella</i> Vinothini.A, Iruthaya Kalai Selvam. S, Sagaya Rani. C and Prabhu. S	36575-36582
160	Investigation of Acute Toxicity and the Effect of Fenaxoprop-P-Ethyl Herbicide on the Behavior and Respiratory Dysfunction of the Common Carp (<i>Cyprinus carpio</i> L.) Srinivas B Neglur and Muniswamy David	36583-36593
161	Personalization of Medicine in Botanical Aspect P.Palanisamy, Poovarasi.S Meena.R, B.S.Venkateswarlu, Nagasubramani. V.S and R.Margret Chandira	36594-36602
162	Lessons for India on Demographic Dividend: Experiences of China, South Korea, and Brazil. Richika Rana	36603-36614
163	Preference of Brinjal (<i>Solanum melongena</i> L.) Cultivars by Hadda Beetle, <i>Henosepilachna vigintioctopunctata</i> Fab. (Coccinellidae: Coleoptera) in Field Condition Sivasankari S, Kathirvelu C and Ayyasamy R	36615-36619
164	HPTLC Fingerprinting of Ethanol Extract of Leaves of <i>Abrus precatorius</i> Linn. Krishnaprabha. N and Parthasarathy.V	36620-36624
165	An Overview on Cubosomes in Pharmaceutical Drug Delivery Systems P.Palanisamy, Muthuraja. R, Kathir. K, B.S.Venkateswarlu, Nagasubramani. V.S and R.Margret Chandira	36625-36632
166	Experience and Expectation of Post Natal Mothers Regarding Nursing Care during Child Birth Process S. Malathi and A. Saridha Prema	36633-36635
167	Effectiveness of Structured Teaching Module on Knowledge of Adolescents Regarding Health Hazards on Use of Mobile Phones U.Palaniammal and S.Malathi	36636-36640

168	Probing the Selective Flavonoids in <i>Tridax procumbens</i> L for Allergic Diseases by <i>In-silico</i> Docking Studies Ravali R, Gopi Sudheer Kumar J and Kavimani S	36641-36649
169	Smart Multi- Channel Seed Counter for Six Row Peanut and Chickpea Planter Anantachar M, P.Rathnakumar, Zeeshan Ali, Ravi kulkarni, MD Umar, Priyankar D and Madeva Nagaral	36650-36655
170	An Overview on Herbal Based Nano Formulations P.Palanisamy, Neha Gupta. T, Meena. R, B.S.Venkateswarlu, Nagasubramani. V.S and R.Margret Chandira	36656-36667
171	Drug Master File: A Regulatory View Narmada S, Kolli Suhas Reddy, Ashuthosh Mishra, V Balamuralidhara and Gowrav M P	36668-36684
172	Effect of Hydraulic Loading Rate S.Prabavathi, N.Manikumari and V.Nehru Kumar	36685-36689

Editorial

Today, more and more people are turning their ideas and imaginations into livelihoods. The creative economy is one of the world's most rapidly growing sectors, contributing 3% of the global GDP. Creativity is also a

renewable, sustainable, limitless resource that we can find anywhere around the world. As we face climate crisis and the pandemic, its potential to drive a human-centric, inclusive development has never been more relevant.



The year 2021 was declared the International Year of Creative Economy for Sustainable Development at the 74th United Nations General Assembly. The implementation of the Year is led by the United Nations Conference on Trade and Development (UNCTAD), in consultation with UNESCO and other relevant UN entities.

The International Year of Creative Economy for Sustainable Development could not have come at a more relevant time. The COVID-19 pandemic has paralyzed the creative economy. From creation, production, distribution to access, no actor within the creative value chain has been spared its impact. The health crisis also revealed and worsened the pre-existing vulnerabilities within the culture sector. Many artists and cultural professionals have been ineligible for social and economic assistances that saved workers in other sectors.

But the health crisis also showed us how essential creativity is to our well-being – to our survival. In 2020, people found solace and resilience in films, series, music and dance. This heightened appreciation for the arts makes 2021 the opportune time in history to celebrate and invest in the creative economy. Creative economy is expansive, and its actors are diverse. At the heart of this dynamic economy are cultural and creative industries, which stand at the crossroad of arts, culture, commerce and technology. The sector generates 2,250 billion USD annually and provides more jobs to workers aged 18-25 than any other fields of employment. This year in particular, as creative industries cope with the impact of the COVID-19 pandemic, the voices and experiences of those impacted, are more important than ever.

We will host an event, discussion, debate, conference or any other celebratory happening to mark the UN's 2021 International Year of the Creative Economy for Sustainable Development.

We're requesting that YOU do if any mentioned above for strengthening the theme.

Editor

IJONS

Cover Page Images credit: Nobel Foundation

Credit: UNO