

**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](mailto:ijonstnsro@gmail.com), [editorijons@gmail.com](mailto:editorijons@gmail.com)-[www.tnsroindia.org.in](http://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 ( Print)
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
Review Process	Double Blind Review Process
Language	English
Publication Format	Print
Access	 OPEN ACCESS
License	 Creative Commons Attribution License 4.0
Phone Nos:	04322- 458193, 04322 –261088 (10.00 A.M to 05.00 P.M)
Email	ijons@tnsroindia.org.in& ijonstnsro@gmail.com
Website	<a href="https://www.tnsroindia.org.in/">https://www.tnsroindia.org.in/</a>
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)

---

<b>Editor-in-Chief</b>	<b>Dr.S.Vijikumar</b> Director TamilNadu Scientific Research Organisation Pudukkottai-622003, Tamil Nadu. India.
	<b>Editorial Committee</b>
Honorable Chief Advisor	<b>Prof. Dr.V.Ramaiyan</b> Marine Biologist, Research Advisor Sri Venkateswara College of Arts & Science. Peravoorani, Thanjavur. Tamil Nadu. India.
Honorable Chief Advisor	<b>Dr.C.Anandharamakrishnan</b> Director, CSIR - National Institute for Interdisciplinary Science and Technology (NIIST) Council of Scientific and Industrial Research ( CSIR ), Ministry of Science and Technology, Government of India Industrial Estate PO, Thiruvananthapuram, India
Honorable Chief Advisor	<b>Dr. B. Vaseeharan</b> Professor and Head, Department of Animal Health and Management,Alagappa University,Karaikudi – 630003
Honorable Chief Advisor	<b>Prof.MahdiVatanParast</b> Chancellor & Professor, Islamic Azad University, QuchanBranch,Quchan-KhorasanRazavi- Iran.
Honorable Chief Advisor	<b>Prof.Dr.HamidSaremi</b> Vice- Chancellor, Islamic Azad University, Quchan branch, Quchan-Iran.
Honorable Member	<b>Dr. N. Jayabalan</b> Professor & Head, Dept. of plant Science, School of life Sciences Bharathidasan University, Tiruchirappalli. Tamil Nadu. India.
Honorable Member	<b>Dr.S.P.Subramaniyan</b> Deputy Controller of Patents and Designs (Govt.of India) Patent Office,IPR Building,GST Road, Guindy,Chennai 600032
Honorable Member	<b>Dr. Hinakousar</b> Assistant Professor, Department of Environmental Sciences, Kuvempu University, Shankaraghatta, Shivamogga – 577 451, Karnataka ,India
Honorable Member	<b>Mr. K.Ramanathan</b> Head, Department of Bioinformatics, Thanthai Hans Roever College Perambalur, TamilNadu, India.

Honorable Member	<b>Dr. K.Gurunathan</b> Prof & Head, Department of Nano science & Technology, Alagappa University, Karaikudi, TamilNadu, India.
Honorable Member	<b>Dr.M.Krishnan</b> Professor,Department of Environmental Biotechnology Bharathidasan University, Tiruchirappalli. Tamil Nadu. India
Honorable Member	<b>Dr.K.Kumarasamy</b> Emeritus Professor, ICSSR-Senior Fellow, Department of Geography Bharathidasan University, Tiruchirappalli. Tamil Nadu. India
Honorable Member	<b>Dr.H.Syed Jahangir</b> Associate Professor, P.G. and Research Department of Botany Jamal Mohamed College(Autonomous) Trichirappalli-620020,TamilNadu,India.
Honorable Member	<b>Mrs.A.Indumathi</b> Asst.Professor,Department of Biotechnology, Bon Secours College for Women,Vilar bypass road, ThanjavurTamilnadu, South India
Honorable Member	<b>Dr. P. Santhanam</b> Associate Professor, Department of Marine Science, School of Marine Sciences,Bharathidasan University, Tiruchirappalli, Tamil Nadu. India
Honorable Member	<b>Dr. M. Lekeshmanaswamy</b> Principal, Kongunadu Arts and Science College G.N. mills (PO), Coimbatore-641 029, TamilNadu, India.
Honorable Member	<b>Dr.H.E.Syed Mohamed</b> Asst. Prof. Dept. of Zoology,Jamal Mohamed College Tiruchirappalli, TamilNadu, India
Honorable Member	<b>Dr. KomalavalliNarayanaswamy</b> Associate Professor, Department of Botany Alagappa University, Karaikudi – 630 003, Tamil Nadu, India.
Honorable Member	<b>Dr.C.Kathirvelan</b> Assistant Professor, Department of Animal Nutrition Veterinary College and Research Institute (TANUVAS) Namakkal -637002. TamilNadu, India.
Honorable Member	<b>MisD.Kalpna</b> Asst.Professor,Department of Chemistry, Bon Secours College for Women,Vilar bypass road, Thanjavur TamilNadu, South India
Honorable Member	<b>Dr.C.BalusamiChinnappan</b> Assistant Professor, Department of Livestock Production and Management College of Veterinary and Animal Sciences

	Pookode-673576.Kerala, India.
Honorable Member	<b>Dr.P.Kavitha</b> Assistant Professor, Department of Zoology and Biotechnology AVVM Sri Pushpam College (Autonomous) Poondi,Thanjavur, TamilNadu, India.
Honorable Member	<b>Dr.G.Ganesan</b> Professor, Department of Mathematics AdikaviNannaya University,Rajahmundry-533105 Andhra Pradesh, India.
Honorable Member	<b>Mrs.A.Amargeetha</b> Asst.Professor,Department of Chemistry, Bon Secours College for Women,Vilar bypass road, Thanjavur TamilNadu, South India
Honorable Member	<b>Dr.C.Thamaraiselvi</b> Assistant Professor, Dept. of Biotechnology Mother Teresa Women's University Kodaikanal-624101,TamilNadu,India.
Honorable Member	<b>Dr. S. Balasubramanian</b> Assistant Professor Department of Mathematics,Government Arts College (A), Karur – 639 005,Tamilnadu,India.
Honorable Member	<b>Dr.G. Rubalakshmi</b> D/o V.P. Govindaraj, #3/41, Nanbargal Nagar,Muthukalipatty, Rasipuram TK, Namakkal DT-637401.Tamilnadu,India.
Honorable Member	<b>Dr. H. Krishna Ram</b> #11, 1st Main, Opp. to SBM, Gnanaganaganagar,Bangalore- 560 056, Karnataka, India.
Honorable Member	<b>Dr.S.SenthilMurugan</b> Assistant Professor, Department of Animal Nutrition, College of Veterinary and Animal Sciences, Pookode, Wayanad, Kerala, India.
Honorable Member	<b>Dr. SivalingamElayabalan</b> Assistant professor 3/33,Eachampatti village Attur(Tk),Salem(Dt)-636107,TamilNadu, India
Honorable Member	<b>Dr. Horne Iona Averal</b> IQAC Coordinator Associate professor in Zoology Holy cross college (Autonomous), Trichy.TamilNadu, India
Honorable Member	<b>Dr.Ga.Bakavathiappan</b> Head & Associate Professor in Zoology SBK College, Aruppukottai - 626 101, TamilNadu, India.

Honorable Member	<b>Dr.P.Govindaraj</b> Head & Associate Professor in Chemistry Department of Chemistry SBK College, Aruppukottai - 626 101,TamilNadu, India
Honorable Member	<b>Dr.N.Vijayakumar</b> Assistant Professor Dept.of Biochemistry & Biotechnology Annamalai University, Annamalainagar-608 002, Tamilnadu, India.
Honorable Member	<b>Dr. S. Umamaheswari</b> Assistant Professor Department of Environmental Biotechnology School of Environmental Sciences Bharathidasan University Tiruchirappalli – 620 024, Tamil Nadu
Honorable Member	<b>Dr. Jai Shanker Pillai H.P.</b> H.D. Ponnaswamy Pillai # 644, Ganesh Temple Street Hunsurtaluk, Mysore district – 571105, Karnataka, India
Honorable Member	<b>Mr. Nesarajan. J</b> Assistant Professor, Department of Zoology, Bishop Heber College, Trichy-17, Tamil Nadu. India
Honorable Member	<b>Dr.V.M. Srinivasan</b> Assistant Professor (Plant Pathology) Department of Crop Protection ThanthaiRoever Institute of Agriculture and Rural Development, Valikandapuram Post, Perambalur - 621115., Tamil Nadu.
Honorable Member	<b>Dr.Ranjith.D</b> Assistant Professor, Department of Veterinary Pharmacology and Toxicology, College of Veterinary and Animal Sciences, Pookode, Wayanad – 673576. Kerala,India
Honorable Member	<b>Dr. S.JeganKaruppiah</b> Assistant Professor, Department of Rural Development Science, Arul Anandar College, Karmathur - 625 514, Madurai. Tamilnadu, India
Honorable Member	<b>Dr.RinaPoonia</b> Associate Professor (Senior Scale) & Deputy Director (Physical Education) Department of Physical Education, Faculty of Arts & Law, ManipalUniversity,Jaipur,India.
Honorable Member	<b>Dr.S.EzhilVendan</b> Scientist Fellow, Food Protectants & Infestation Control Department, CSIR-Central Food Technological Research Institute, Mysore-570 020,Karnataka,India.

Honorable Member	<b>Dr.N.Raman</b> Associate Professor, Department of Chemistry, VHNSN College, Virudhunagar-626 001, TamilNadu,India.
Honorable Member	<b>K.Kalidas</b> Assistant Professor & Head, Dept. of Social Science, Vanavarayar Institute of Agriculture, Manakkadavu, Pollachi, TamilNadu,India.
Honorable Member	<b>Dr.A.DinakaraRao</b> Associate Professor, Center for Bioinformatics,School of Life Sciences, Pondicherry university,Puducherry,India
Honorable Member	<b>Dr.K.Sivakumar</b> Associate Professor, Department of Botany,Annamalai University, Annamalai Nagar,TamilNadu,India
Honorable Member	<b>Dr.M.Biruntha</b> Assistant Professor, Department of Animal Health and Management, Alagappa University,Karaikudi,TamilNadu,India
Honorable Member	<b>Dr.K.Saravanan</b> Assistant Professor ,PG & Research Dept. of Zoology, Nehru Memorial College (Autonomous), Puthanampatti,Tiruchirappalli TamilNadu,India.
Honorable Member	<b>Dr. Syed Abrar</b> Research Associate, Department of P.G. Studies & Research in Applied Botany, KuvempuUniversity,Shivamogga, Karnataka,India.
Honorable Member	<b>Dr.V.VioletDhayabaran</b> Associate Professor ,Department of Chemistry, Bishop Heber College (Autonomous), Puthur, Tiruchirappalli,TamilNadu,India.
Honorable Member	<b>Dr.Ananthnag B</b> Lecturer, Department of Environmental Science, Kuvempu University,Shivamogga, Karnataka,India.
Honorable Member	<b>Dr.M.Ramesh</b> Associate Professor, Department of Biotechnology,Alagappa University, Karaikudi-630003,SivagangaiDt, TamilNadu,India.

Honorable Member	<b>Dr.S.YaminiSudha Lakshmi</b> Assistant Professor, Department of Medical Biochemistry, University of Madras,Taramani Campus, Chennai-600113,TamilNadu,India.
Honorable Member	<b>Dr.B.Kaleeswaran</b> Assistant Professor, Dept. of Zoology & Biotechnology, A.V.V.M.Sri Pushpam College, Poondi, Thanjavur,T.N.India.
Honorable Member	<b>Dr.A.Radha</b> Assistant Professor,Dept. of Zoology KunthavaiNaacchiyarGovt Arts College for Women, Thanjavur-7,T.N.India.
Honorable Member	<b>Dr.V.L.Madhu Prasad</b> Directorate of Extension, University of Agricultural Science, Hebbal,Bangaluru-560024. Karnataka,India.
Honorable Member	<b>Dr.V.Sakthirama</b> 3/8,P Block,SreeDakshaa-Vhiridhaa Bharthiyar University Post,Coimbatore-641046 TamilNadu,India.
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	<b>Dr.Prantosh K. Paul</b> Assistant Professor And Coordinator, Department of Computer & Information Science, Raiganj University, Raiganj, West Bengal-733 134, India.
Honorable Member	<b>Dr. Ajay Anil Gurjar</b> Professor & Dean Academics, Sipna College of Engineering & Technology, Amravati(M.S)- 444606,India.
Honorable Member	<b>Dr.Mrs.E.Emimal Victoria</b> Assistant Professor, Department of Zoology Sri Meenakshi Govt. Arts College for Women, Madurai TamilNadu,India
Honorable Member	<b>Dr.C.Kandeepan</b> 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	<b>Dr.V.E.NethajiMariappan</b> Scientist "F" Centre for Remote Sensing and Geoinformatics Sathyabama University, Rajiv Gandhi Road, Cholinganallur, Chennai – 600119, Tamil Nadu
Honorable Member	<b>Dr.K.Nagarajan</b> Head & Associate Professor Department of Zoology VHN Senthikumara Nadar College, Virudhunagar, Tamil Nadu, India.
Honorable Member	<b>Dr.D.Sivaraman</b> Scientist-C Department of Pharmacology, Sathyabama University, Centre for Laboratory Animal Technology and Research Chennai- 600 119.
Honorable Member	<b>Dr.N.Mahesh</b> Assistant Professor Department of Chemistry & Biosciences SASTRA University Srinivasa Ramanujan Centre, Kumbakonam, Thanjavur Dist, Tamil Nadu, INDIA
Honorable Member	<b>Dr.Somit Kumar Gupta</b> Dean of Science, Department of Physics, Vishwakarma College of Global Excellence , Jaipur, Rajasthan, India
Honorable Member	<b>Dr.Prakash.M</b> Professor, Department of Genetics and Plant Breeding, Faculty of Agriculture, Annamalai University, Annamalainagar- 608002. Cuddalore District.
Honorable Member	<b>Dr.M.Prasad</b> Assistant Professor, Department of Nutrition and Dietetics, Sathiyakathappa College, Sathiyakathappa Nagar, Tirunelveli-627011. T.N.India
Honorable Member	<b>Dr.K.Kayalvizhi</b> Teaching Assistant (Horticulture), Horticulture Institute of Agriculture, Kumulur- 621 712, Lalgudi (Taluk), Trichy District
Honorable Member	<b>Dr.P.Jeyaseelan</b> Associate Prof., Department of Agricultural Extension, Faculty of Agriculture, Annamalai University, Annamalai Nagar – 608 002, Cuddalore
Honorable Member	<b>Dr.Neelesh Sharma</b> 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	<b>Dr.Muthuraman A.,</b> Assistant Professor, JSS College of Pharmacy, JSS University, Mysuru -570 015. Karnataka,India..
Honorable Member	<b>Dr.G.RamaRao</b> Principal Scientist &Head, Dept.of Crop Physiology, RARS Lam, Guntur-522034, ANGR Agricultural University, Andhra Pradesh,India.
Honorable Member	<b>Dr.A.S.Kanagalakshmi</b> Professor, Dept. of Civil Engineering, Vignanam Engineering College Chennai 600123.Tamilnadu,India.
Honorable Member	<b>Dr.M.Ramarao</b> Associate Professor, Department of Mechanical Engineering, Holy Mary Institute of Technology & Science Hyderabad,Telangana 501301, Telangana, India.
Honorable Member	<b>Dr.Y.V. Krishna Reddy</b> Department of Agricultural Engineering, Aditya Engineering College, Surampalem- 533437, East –Godavari, A.P., India
Honorable Member	<b>Dr.Komal Kumar Javarappa</b> Institute of Molecular Medicine Finland, University of Helsinki, Finland, Biomedicum Helsinki 2U, G315b, Finland- 00014.
Honorable Member	<b>Dr.Easwari.S</b> Asst.Professor, S.K.K. Munirajah College of Agricultural Science, N.Palayam, Erode Dist.,TamilNadu, India.
Honorable Member	<b>Dr.ManigopaChakraborty</b> Chief Scientist cum University Professor Department of Genetics & Plant Breeding, Parsa Agricultural University, Kanke, Ranchi, Jharkhand – 834006., India.
Honorable Member	<b>Dr.Arvind Prasad Dwivedi</b> Lecturer, Department of Chemistry, Govt. Sanjay Gandhi Smriti College, Raigarh, Madhya Pradesh, India.
Honorable Member	<b>Dr.M.N.Harisha</b> Guest Lecturer, Department of Wildlife and Management, Kuvempu University, Nanasahyadri, Shankaraghatta - 577451. Shimoga

Honorable Member	<b>Dr.R.Rajkumar</b> Senior Scientist, Village Resource Centre M S Swaminathan Research Foundation Mudukkottai,TamilNadu,India.
Honorable Member	<b>Dr.Vidyalakshmi G M</b> Division of Veterinary Physiology , CSM Lab, ICAR- IVRI, Izatnagar, Bareilly, Uttar Pradesh – 243 122. India.
Honorable Member	<b>Dr.N.Shruthi</b> Division of Animal Biochemistry, ICAR- IVRI, Izatnagar, Bareilly, Uttar Pradesh – 243 122. India.
Honorable Member	<b>Dr.S.Deepa</b> PGT Biology, G.K.Shetty Vivekananda Vidyalaya Junior College, Ambattur, Chennai – 600053. Tamil Nadu, India
Honorable Member	<b>Dr.A.Suganya</b> Research Scholar, Department of Agricultural Science, Tamil Nadu Agricultural University, Coimbatore
Honorable Member	<b>Dr. N. Jeyapandian</b> Research Associate, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore.
Honorable Member	<b>Dr.R.Selvaraj</b> Associate Professor, Department of Veterinary Physiology, Centre for Laboratory Animal Technology & Research (CPCSEA approved), Sathyabama University, Chennai – 600 119.
Honorable Member	<b>Dr.V.Karthika</b> Senior Research Fellow, Department of Environmental Science, Water Technology Centre, Tamil Nadu Agricultural University, Coimbatore – 641 003.
Honorable Member	<b>Dr.M.Karthikeyan</b> Assistant Professor (Plant Pathology) Department of Vegetable Crops ,HC&RI Tamil Nadu Agricultural University ,Coimbatore TamilNadu,India
Honorable Member	<b>Dr.K.Rajendran,</b> Research Associate, Directorate of CARDS, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu,India.

Honorable Member	<p><b>Dr. V. Janahiraman</b>  Assistant Professor ( Agricultural Microbiology)  Krishna College of Agriculture and Technology,  Srirengapuram -625532, Usilampatti, Madurai-Dt  Affiliated by Tamil Nadu Agricultural University.  Tamil Nadu, India.</p>
Honorable Member	<p><b>Dr.A.Mahadevan</b>  Assistant Professor,Dept. of Horticulture,  Krishna College of Agriculture and Technology,  Srirengapuram -625532, Usilampatti, Madurai-Dt.  Tamil Nadu, India</p>
Honorable Member	<p><b>Dr.A.Manikandan</b>  Principal,  Muthayammal Memorial College of Arts and Science,  Rasipuram,NamakkalDist – 637408.  Tamil Nadu, India.</p>
Honorable Member	<p><b>VijayaBhaskaraReddy.MUTHA</b>  Asst. Prof.Faculty of Public Health,  St Theresa International College,  1 Moo 6 Rangsit-NakhonNayok Road (Klong 14),  Bungsan,Ongkharak – 26120  NakhonNayok, Thailand.</p>
Honorable Member	<p><b>Dr. R.MarySuja</b>  Director,Williams Research Centre, Nagarcoil – 1  KanyakumariDist,Tamil Nadu, India</p>
Honorable Member	<p><b>Dr. P. Chandramani</b>  Professor, (Agricultural Entomology),  Agricultural College and Research Institute,  Tamil Nadu Agricultural University  Kudumiyamalai – 622 104.  Pudukkottai Dist., Tamil Nadu, India</p>
Honorable Member	<p><b>Dr. Hasan S.A. Jawad</b>  Animal Production Department,  Agricultural Faculty,  University of Baghdad,  Baghdad,Iraq</p>
Honorable Member	<p><b>Dr. S. SuganyaKanna</b>  Assistant Professor, (Agricultural Entomology),  Agricultural College and Research Institute,  Tamil Nadu Agricultural University.  Kudumiyamalai– 622 104.  Pudukkottai Dist., Tamil Nadu, India</p>
Honorable Member	<p><b>Dr. Ali Abdel-HadiMahoudAlsudani</b>  Assistant Professor in College of Science  Biology Department,  University of Al-Qadisiyah,  Iraq.</p>

Honorable Member	<b>Dr. M. Manikandan</b> Senior Research Fellow, Tamil Nadu Agricultural University Coimbatore – 641003. Tamil Nadu, India.
Honorable Member	<b>Dr. Salam Hussein Ewaid</b> Environmental Science, Assist. Professor, Shatra Technical Institute Southern Technical University,Iraq.
Honorable Member	<b>Dr.S.Prema</b> Asst. Professor and Head of BCA at ArulmiguArthanareeswarar Arts & Science College, Tiruchengode, Namakkal, Tamil Nadu
Honorable Member	<b>Dr.S.Sasikala</b> Associate Professor,Department of Computer Applications, Hindusthan College of Arts and Science, Coimbatore - 641 028,Tamilnadu, India.
Honorable Member	<b>Dr. GhaidaaRaheemLateef Al-Awsi</b> Al-Mustaqbal University College, Babylon,Iraq.
Honorable Member	<b>Dr.C.Ravinder Singh</b> Asst. Professor, PG and Research Department of Botany, Vivekanandha College of Arts and Sciences for Women, Elayampalayam- 637 205, Tiruchengode, Namakkal,Tamil Nadu, India.
Honorable Member	<b>Dr. Salwan Ali Abed</b> Department of Environment College of Science University of Al-Qadisiyah, Iraq.
Honorable Member	<b>Dr.S.Alagumanian</b> Head &Assistant Professor, PG &Research Dept. of Botany H.H. The Rajash's Collage, Pudukkottai, Tamilnadu, India
Honorable Member	<b>Dr.FaizaKadhimEmran</b> Department of Biology, College of Science, University of Baghdad, Baghdad, Iraq.
Honorable Member	<b>Dr.N.Vasanthakumar</b> Librarian, The American College, Madurai – 625 002, Tamilnadu,India
Honorable Member	<b>Dr. Ahmed MahmoodShukur AL-Nedawi</b> Assistant Professor, Animal Resource Department, Faculty of Agriculture, University of Baghdad, Baghdad, Iraq

Honorable Member	<b>Dr.Thirumal Kumar D</b> Assistant Professor(Jr) Department of Integrative Biology, School of Bio Sciences and Technology Vellore Institute of Technology Vellore – 632014, Tamilnadu, India
Honorable Member	<b>Dr.R.Jayapandi</b> Assistant Professor, Department of Bio Chemistry, The American College, Madurai – 625 002 Tamilnadu, India
Honorable Member	<b>WejdanThamir Mahdi</b> University of Qadisiyah, Iraq
Honorable Member	<b>Dr.K.F.Bharati</b> Assistant Professor, Department of Computer Science and Engineering, JNTUA College of Engineering, Ananthapuramu-515002, Andhra Pradesh, India.
Honorable Member	<b>Dr.HudaFalahHasanRadiAlqaraghuli</b> Assistant Professor, College of Veterinary Medicine, University of Baghdad, Baghdad, Iraq.
Honorable Member	<b>Dr.S.V.Sai Prasad</b> Principal Scientist & Head ICAR-IARI, Regional Station, Near Agriculture College, Indore – 452 001, Madhya Pradesh, India
Honorable Member	<b>Dr.Intedhar Abbas Marhoon</b> Assistant Professor, Biology Department, Faculty of Science, University of Al-Qadisiyah, Iraq
Honorable Member	<b>Dr.Omkar Prasad Baidya</b> Assistant Professor, Department of Physiology, ESI-PGIMS and ESIC Medical College, Joka, Kolkata, West Bengal, India
Honorable Member	<b>Dr.V.Kavitha</b> Associate Professor, PG and research Department of Computer Application, Hindusthan College of Arts and Science, Coimbatore -28, Tamilnadu, India
Honorable Member	<b>Dr.PreethiBalasundaram</b> 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	<b>Dr.Vikas Sharma</b> Associate Professor/Sr. Scientist (Agronomy) Regional Agricultural Research Station SKUAST-JAMMU, Tandwal-Rajouri, Teh. And District Rajouri, State Jammu and Kashmir, India

Honorable Member	<b>Dr.Pushpa S Murthy</b> Senior Scientist, Department of Spice and Flavor Science AcSIR Associate Professor (Biological Sciences), CSIR - Central Food Technological Research Inst. MYSURU, Karnataka, INDIA
Honorable Member	<b>CH.V.Satyanarayanaraju</b> Scientist, Research Centre Imarat, DRDO Hyderabad, Telangana, India
Honorable Member	<b>Dr.KarthikeyanRajamani</b> Senior Research Scientist (Biomarker) ICMR Centre for Advanced study in Air pollution, Department of Environmental Health Engineering, SriRamachandra Institute of Higher Education and Research, Porur-600116, Chennai, TamilNadu, India
Honorable Member	<b>Dr. SAIKAT SEN</b> Associate Professor Faculty of Pharmaceutical Sciences Assam down town University, Panikhaiti, Guwahati, Assam - 781026, India
Honorable Member	<b>Dr.E.Selvarajan</b> Research Assistant Professor Department of Genetic Engineering School of Bioengineering SRM Institute of Science and Technology Kattankulathur-603203, Chennai,Tamilnadu, India
Honorable Member	<b>Dr.V.ShanmugaSundaram</b> Assistant Professor & Head Department of Statistics Mahendra Arts & Science College (Autonomous) Kalippatti, Namakkal-637501, Tamilnadu, India.
Honorable Member	<b>Dr. J. Rajangam</b> Professor and Head,Department of Fruit Crops, HC & RI, Periyakulam,Tamilnadu, India
Honorable Member	<b>Dr.BhagyalakshmiRajaram</b> Associate Professor, Department of Management Studies, PSNA College of Engineering & Technology, Dindigul, TamilNadu, India
Honorable Member	<b>Dr.S.Annapoorani</b> Assistant Professor in Biotechnology, Dr.UmayalRamanathan College for Women Karaikudi, Sivaganga (Dt), TamilNadu, India
Honorable Member	<b>Dr.R.Parimalan</b> Scientist (Agri. Biotech) & Hon. Faculty (QAAFI, UQ), Division of Genomic Resources,ICAR-National Bureau of Plant Genetic Resources,PUSA Campus, New Delhi-110012
Honorable Member	<b>Dr. M.PANDIYAN.,</b> Professor (PBG), Former Dean, TNAU, Regional Research Station, Vridhachalam, Cuddalore District, Tamil Nadu, India

S. No.	CONTENTS	Page No.
001	Analysis of Seasonal Variation of Some Physico-Chemical Parameters of Manas River, North-East India, to Access Its Health Priyam Sarmah	57816-57827
002	Fertility Enhancing Potential of Aerial Part of <i>Enhydra fluctuans</i> in Male Albino wistar Rats Moksood Ahmed Laskar and Mrinmoy Basak	57828-57834
003	Summarize the Cumulative Rainfall Statistical Data using Five Number Summary, Outliers and Graphical Representation of Box Plot Ravi Dhandhukiya and Aakash Gupta	57835-57839
004	Characterizations and Evaluation of Grain Amaranth Genotypes for Morphological and Seed Quality Traits Anita Trivedi, Pankaj Kumar and Girish Chandra	57840-57846
005	Synthesis, Spectral and Thermal Studies of Mixed Ligand Yt (III) Complexes and their Biological Investigation Sunil. S. Patil, Saipraasad Patil, Digambar K. Patil, Vishal S. Kamble, Jitendra M. Pawara	57847-57855
006	Antiplasmodial Potential of <i>Sesuvium portulacastrum</i> (L.) L. Deebika Kumar, D. Kumarasamy, Ritu Gill, Archana Sharma, Kathiravan Mani <sup>1</sup> and P. Munnaji	57856-57860
007	Human - Computer Interaction for Intelligent Women Safety and Security System R. Rajayogeswari and A.B. Karthick Anand Babu	57861-57867
008	The Impact of Air Pollution on Solar Energy Generation in the Panvel - Navi Mumbai Region V.N. Pawar, V.S. Kamble, S.T. Salunkhe, J.M. Pawara, S.K. Patil, G.U.Patil and S.S. Kamble	57868-57871
009	Phyto-Constitutes Profiling by using LC-MS and GC-MS analysis and Antioxidant Activities of <i>Phyllanthus maderaspatensis</i> L. Hitesh R. Kumarkhaniya and Bharat B. Maitreya	57872-57880
010	An Umbrella Review of Pulsatile Drug Delivery System on Benefits and Importance in the Treatment of Various Diseases Earva Sravani, V.T. Iswariya and N. Madhavi	57881-57886
011	Pharmacognostic Standardization and Phytochemical Evaluation of <i>Phyllanthus maderaspatensis</i> L. Hitesh R. Kumarkhaniya and Bharat B. Maitreya	57887-57897
012	A Brief Review of Regulatory Requirements and Outcomes for Continuous Manufacturing in Pharmaceuticals Abhishek Kumar Sharma, Preeti S. Atanur, Pyda Venkata Harsha Vardhan and Amit B. Patil	57898-57910
013	Prediction of Financial Time Series using Deep Learning Hybrid Model Techniques Krishna Mohan B.H, Durairaj.M and Ch. Suneetha	57911-57923



014	Design of an IoT based Electric Vehicle Charging Station Murali.L, Ragul Ram Prashanth.A, Saravanan.B, Sathish Kumar.S and Vimalraj.K	57924-57929
015	A Comparative Study of Bone Fracture Detection Techniques: Convolutional Neural Networks' Outperformance Aleena Thankachan, and John T Abraham	57930-57934
016	Facial Expression Recognition Analysis Applying Deep Learning Technique based on Convolutional Neural Network Architectures Nancy Sopana N S, and P Radhakrishnan	57935-57941
017	<i>In-silico</i> Study for Potential Inhibitors of HSP70 Proteins in the Treatment of Breast Cancer Yunus, Kumar Praveen and Vasniwal Roshan	57942-57950
018	A Comparative Study on the Spectral Response of a p <sup>+</sup> n n <sup>+</sup> Structured Back- Surface - Field Silicon Solar Cell with p <sup>+</sup> n Junction Solar Cell Ashim Kumar Biswas	57951-57955
019	Antioxidant and Hepatoprotective Activity of <i>Scoparia dulcis</i> via NFκB Activation on Exposure to Chronic Noise Stress Wankupar Wankhar	57956-57964
020	Maternal Experiences of Caring for a Child with Autism : A Narrative Review of Qualitative Studies Akhila Johnson and S.Sampath Kumar	57965-57970
021	Assessment of the Impact of Geospatial Sensitivity on Meteorological Parameters at Ahmedabad, India, using the WRF Model Hiren S. Lekhadiya and Ravi R. Dhandhukiya	57971-57975
022	Resident Perceptions toward Cultural Heritage Tourism in Jammu and Kashmir : An Empirical Study Nassar Ahmed and Shahnawaz Ahmad Dar	57976-57986
023	Knowledge Attitude and Practices of Covid Appropriate Behavior- A Cross Sectional Dipstick Study of People in Jaipur, Rajasthan J.Shanmugapriya, Kavaldeep Dixit, Geetika Goswami, Seema Mehta, Tanjul Saxena and Rishi Sharma	57987-57995
024	Deep Learning - based Dynamic Music Recommendation System based on Human Emotions Sanjay.K, C. Geetha, S.Thaiyalnayaki, P.Geetha and M. Selvi	57996-58002
025	Ground Water Exploration using Remote Sensing and GIS in Zawlnuam Rural Development Block, Mizoram, India F.Lalbiakmawia, Malsawmtluanga and Teresa Lalrinengi	58003-58010
026	Studies on Impacts of Organic Farming on Soil Quality and its Fertility - a Review Akshay Kiran K, Lingaraju H G and Shankramma K	58011-58020
027	A PSO based MPPT in a Standalone PV System to Tackle Steady State and Dynamic Climatic Conditions N.V.Uma Maheswari	58021-58025
028	Maximum Power Point Techniques with High Step-up DC-DC Converter Ganga M and Deeparani M	58026-58034
029	Various Patterns of Spinal Muscle Imbalances in Shoulder Joint Dysfunction - A Systematic Review Sakshi P. Shah and Sandeep B. Shinde	58035-58045

030	A Study of NGOs in Jammu and Kashmir Working with Inclusive Perspective of Education for Beneficiaries' Capacity Building Monika and Kiran	58046-58055
031	Evaluation of Chest X-Ray on Covid-19 Patients : A Review Vashist Baburao Mhalsekar and Adithya G Rao	58056-58060
032	Evaluation of the Water Quality in the Eastern Parts of Nandurbar District, Maharashtra, India S. N. Patil, A. M. Pimparkar, and B.D.Patil	58061-58070
033	Optimizing Economic order Quantity through Geometric programming with Fuzzification of Inventory Parameters H.Mary Henrietta, K. Kalaiarasi and M. Sumathi	58071-58078
034	Predictive Model for Placement Assurance in Management Institution using Machine Learning Algorithms Ankit Maurya and Abhay Dwivedi	58079-58084
035	Maya's Psychological Issues in Anita Desai's Cry, the Peacock: a Brief Analysis Gangeshwaran Raj and S.Chelliah	58085-58088
036	A Review of Nano Capsule N. Rajavel, K. Praveena and P. Pandian	58089-58098
037	Health-Related Quality of Life in Overweight and Obese Adolescents: A Systematic Review Saritha.G, Anita David, Stalin.P and Julius Xavier Scott	58099-58107
038	Effect of Fortified Organic Manures and Micronutrient Fertilization on the Soil Properties and Yield of Sesame in Coastal Saline Soil ( <i>Typic ustifluent</i> ) D.Elayaraja, S.Rachanya S.Jawahar and P. Kamalakannan	58108-58119
039	Application of Arbuscular Mycorrhizal Fungi (AMF) Zinc Tolerance on Groundnut ( <i>Arachis hypogea</i> . L) P. Munnaji, K.Palanisamy, K. Prakash and T. Ravi Mycin	58120-58126
040	Impact of Visual Art Therapy for Children with Intellectual Disability : An Experimental Study Rayees Zahoor Shah and P.Swarna Kumari	58127-58130
041	A Survey: Cloud Resource Scheduling Algorithms Pandi Prabha S and BhuvanaJayabalan	58131-58140
042	Ideal based on New Nano Open Sets S. Shyamala Malini and P.Jeyalakshmi	58141-58147
043	Child Abuse in Schools : The Case of the Indian Sub Continent Kaustubh Jain, Shiromi Chaturvedi and Bhavana Arya	58148-58158
044	An Overview: Water Pollution and Management by using Nanoparticles Reeta Meher and Preeti Pandey	58159-58164
045	Analysis of Machine Learning in Smartphone with AI Tax in Mobile SoCs Vedanandaprabhu P.G and B.A. Karunakara Reddy	58165-58174
046	Application of Pharmacometrics in Indian Scenario Preeti S. Atanur, Abhishek Kumar Sharma and Amit B Patil	58175-58188
047	Subspace Inclusion Graphs from Vector Spaces H.Velwet Getzimah <sup>1*</sup> and A. Kalaiyarasi	58189-58195
048	Effect of Catalyst Preparation and Temperature on Growth of Multiwall Carbon Nanotubes by Chemical Vapor Deposition N.Pradeep and Uma.V	58196-58201

049	Paired Neighbor Connected Dominator Coloring Set in Graphs R.Jothiraj and B.Chandralekha	58202-58211
050	Unilateral Supernumerary Premolar : A Case Report Shikha Sharma, Anurag Bhatnagar and Geetika Arora	58212-58215
051	An Economic Analysis of Socio- Economic Factors Affecting Households Consumption Expenditure Pattern in Villupuram District of Tamil Nadu N. Prasanth and T.Ponnarasi	58216-58221
052	A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge of Interpretation and Management of Arrhythmias among Staff Nurses in a Selected Hospital, Bangalore Roshni Moirangthem, Mairembam Pamela Devi, Nirmala Devi and Angom Rani Devi	58222-58225
053	A Study on Financial Analysis of Central Public Sector Enterprises: Special Reference to Agro Based Industries in India. Venkatesh G M	58226-58231
054	Assessment of Methanolic Leaf Extract of <i>Lantana camara</i> on Morpho-Biochemical Parameters of <i>Psoralea corylifolia</i> L. Mehvish Ayub <sup>1*</sup> , Arsheed Ahmad Rather <sup>2</sup> , Suhaib Mohd Malik <sup>1</sup> , Gazala Bashir <sup>1</sup> and Bharty Kumar	58232-58239
055	Recent Therapeutic Target in Treatment of Asthma Advait B. Chautmal, Samiksha S.Deokar, Mohammed Sami A.Bijle, Pavankumar P. Wankhade and Niraj S. Vyawahare	58240-58249
056	A Study on Impact of Artificial Intelligence and Its Challenges in Software Testing V.Sathyavathy	58250-58254
057	Statistical Optimization of Ultrasonic Pretreatment of Municipal Wastewater for Biomass and Lipids Production Using Newly Isolated <i>Scenedesmus quadricauda</i> Kütz. S. Malathy, R. Narmatha, K. Shanthi, and K. Dhandayuthapani	58255-58263
058	Provenance Studies on the Art of Making Ancient Indian Pottery G. Anand, P. Sutharsan, C.Manoharan, R.M. Vimalathithan and G. Suresh	58264-58270
059	Self Distributive STBE-Algebras P. Lakshmi Kumari and V. Thiruvani	58271-58275
060	Nano Topology Based on New Generalized Closed Sets and Functions S. Shyamala Malini	58276-58283
061	A Snapshot of Regulatory Approval of Medical Devices in Australia and China Gowthami K R, Thoyajaksha V and Balamuralidhara V	58284-58293
062	Pert Evaluation Review Technique using Trapezoidal Type -2 Fuzzy Numbers P.Balasowandari, L.Sivakami, N.Manoharan	58294-58300
063	Analysis of the Effects of Social Media on Business Performance based on Opinions of Industry Personnel Prasant Kumar Rout and Gobinda Chandra Panda	58301-58311
064	A Novel Artificial Intelligence Assisted Data Security Enhancement using Image Steganography V.Raja	58312-58324

065	Breaking Barriers: The Significance of Translation in Portraying Diverse Perspectives and Cultures : A Survey – based Study Bhuvaneshwari. R.S and Rajeshwari R. S	58325-58330
066	A Study on Legal Regulation of Cryptocurrency between India and G-20 Countries: A Comparative Analysis Divya P and Shobha B G	58331-58341
067	E-Governance, Digitalisation: Challenges Faced, Central and State Level Implementation of Digitalisation, Goals and Objectives – A Study with Reference to Bengaluru Vedavathi M and Chadan Chavadi	58342-58349
068	An Analytical Study on Mobile Apps available for Farmers in India K.Mala and Sumathi C	58350-58354
069	An Exploratory Study on Impact of Fintech on the Future of Banks and Financial Services Kavya Y R and Anitha S Yadav	58355-58364
070	Determinants of Investment Decisions of Working Women Post Covid 19 Outbreak - A Systematic Literature Review Vasudha Srivatsa and Uma Devi Ananth	58365-58373
071	Financing Strategies for Rural Economic Development in Mandya District: A Comparative Analysis of Government and Non-Government Organizations Indira M and D.Vijayasree	58374-58379
072	A Conceptual Study on Non-Performance Assets of Banking Sector in India. Sangeetha.G	58380-58387
073	A Study on the Impact of Increased Goods and Services Tax (GST) on Ice Creams in India Spoorthi S Kumar, Lakshminarayana N and M.Gurusamy	58388-58396
074	Effectiveness of Health Education through Picture Booklet Regarding Personal Hygiene and Eating Habits of Preschool Children among under-Five Mothers in Selected Rural Areas in Bangalore Nirmala Devi, Mairembam Pamela Devi, Roshni Moirangthem and Angom Rani Devi	58397-58401
075	A Study of the Impact of Cognitive Biases on College Students' Investment Behavior: with Financial Literacy as a Moderator Umme Jahanara and Vinay Joshi C	58402-58411
076	Factors Impacting Dimension of Organizational Culture, its Significance and Factors Responsible towards Resistance to Change – A Study W.R.F. Selected Companies in Bengaluru Brunda S and Irshad Nazeer	58412-58423
077	Challenges of Adoption of Digitalisation in Banking Sector Pavithra H P and Vinutha K	58424-58428
078	Consumer Behaviour towards White and Brown Consumer Durables - A Study of Literature Review R.B.Nagarathinam and Nagesh.B	58429-58432
079	A Two-Stage Intrusion Detection System using Machine Learning Approaches for IoT Networks R.Logambigai, B. Sandhya and A. Kannan	58433-58441

080	Student Investors Psychological Traits and Investment Pattern – Specific Study on Undergraduate Students Sharada S and Suma B R	58442-58446
081	A Reliability Study of Electrical Feeder System and Customer Oriented Indices Deepali Biniwale and Sanjay Chaudhary	58447-58451
082	Currency Derivatives Market and the Factors that Influence the Market Performance : A Study with Reference to Investors in Bengaluru District Lasya.KR, Gururaj F Duragannavar and Anu Krishnamurthy	58452-58466
083	Is Plant-Forward Eating Patterns are Healthy or Not?" S.Sivakrishnan and N.Srinivasan	58467-58471
084	Determinants of Herding and Market Factors Influencing Investment Decisions and Investment Pattern of Investors and its Impact on Performance of Equity Market. Rekha DM and Roopa K N	58472-58486
085	A Study on Impact of Talent Engagement on Employee Productivity Savitha G Pai	58487-58493
086	An Intelligent Air Conditioner Controller using Fuzzy Inference System R. Logambigai, G. Harini and A. Kannan	58494-58503
087	Green Synthesis and Characterization of <i>amaranthus spinosus</i> and to Analyse it's Antimicrobial Activity R.Megala, P. Sudhakar and P.Chidambara Rajan	58504-58511
088	Exploring the Evolution of Financial Literacy and Investment: A Bibliometric Analysis of the Past Decades' Academic Literature Sushma V and Vinay Joshi	58512-58527
089	A Novel Text-Braille-Text Converting Communication Device for Communication Impaired People R.Kanimozhi, M.Saravanan and R. Arul	58528-58535
090	Translation as Recreation: On the Experience of Translating Kannada Vachanas to English. Sojan K G	58536-58540
091	A Study on Consumer Attitude towards Eco-Friendly Products in Chennai City Narmadha	58541-58546
092	A Study on Work Life Balance with Special Reference towards Hinduja Global Solution Ltd. Lakshmi .S and Nandini R.G	58547-58554
093	A Novel Hybrid AlexNet-Gated Recurrent Unit (AlexNet-GRU) Model to Detect Lung Cancer Aakash Gupta and Ravi Dhandhukiya	58555-58562
094	ICT's Impact on Center-State Relations in India. Aadil Ahmad Shairgojri and C. Subramanian	58563-58570
095	Effect of Exogenous Application of Hexaconazole and Melatonin on Physiological Changes in <i>Eleusine coracana</i> L.(Finger millet) Under Salinity Stress Kathiravan Mani, R. Somasundaram, Aryendu, and Aamir Abdullah	58571-58579
096	A Review on Siddha in Consuming Rice Flakes Varieties during Seasonal Variation S.Priyadharshini, S.Subaraj, R.Gomathi, T.Subathra and E.Preetheeka	58580-58584

097	Spiritual Intelligence and Yoga : Exploring the Synergy for Inner Transformation Deepak Bangari, Bindiya Rawat, Rina Poonia, Yogesh Shukla and Deepender Singh	58585-58593
098	Phytochemical Analysis of <i>Rhizophora apiculata</i> Leaf and Root Extract and Its Inhibitory Action against <i>Staphylococcus aureus</i> , <i>Pseudomonas aeruginosa</i> and <i>Escherichia coli</i> Topi Karga and A. Venkatesan	58594-58601
099	To Predict the Life Span of Selected Indian Fruits through MATLAB Segmentation and Deep Learning Techniques G.Aruna Arumugam and M.Mohamed Divan Masood	58602-58612
100	A Matlab-Based Method for Solving Fuzzy Transportation Problems A.Rajkumar, J.Sharmila Jessie Ignatia and A.Ezhilarasi	58613-58620
101	Immediate Effect of Plantar Flexors Kinesio Taping on Reactive Postural Control in Post Stroke Subjects- A Randomized Controlled Trial Drashti Kotak and Mansi Patel	58621-58627
102	Ethnomedical Translation as an Avenue for Converging Ethnomedicine with Biomedicine to Construct a Plausible Integrative Medical Approach Monisa.R and David Arputha Raj.V	58628-58641
103	Psoriasis: Nutritional Management for Patients with Psoriasis Kalyani U. Chande and Nikhil S. Ekhande	58642-58648
104	Machine Learning Algorithms for Healthcare Data Analysis L.Sheeba, K. Devika Rani Dhivya and V.Arun Karthik	58649-58657
105	A New Extension of Quasi Suja Distribution with Properties and Applications Rekha Radhakrishn <sup>1</sup> and D.Venkatesan	58658-58669
106	Kashmir's Medicinal Heritage: A Historical Perspective of Traditional Healing Systems Rashid Manzoor Bhat, P. Rajan ,R. Rajeshwari and Lakmini Gamage	58670-58679
107	Formulation and Quality Control Evaluation of <i>Nilavaagai kiyazham</i> - A Siddha Polyherbal Formulation Nivetha G, Sri Sakthi Logisha M, Subha.V, Muthukumar.N J, Mahalakshmi V, and Meenakumari.R	58680-58689
108	Translation and Validation of Gujarati Version of Caregiver Burden Scale- Indian Population in Cerebral Palsy : A Cross Sectional Study Priyanshi R. Patel , Vivek H. Ramanandi, Mahima Y. Tailor and Jenny D. Chaudhari	58690-58695
109	An Evaluation of Irrigation System of Performance in Metacriteria Decision Making using Fuzzy Logic A. Rajkumar , R. Archana, J. Sharmila Jessie Ignatia and A. Ezhilarasi	58696-58703
110	Enhancing Understanding of Abstract Concepts through OLABS : A Pathway towards Quality Experimentation in Science Priyanka Sharma and Aman	58704-58710
111	Effect of Self-Developed E-Content Modules in Biology to Enhance Learning Agility : An Experimental Analysis Neha Rawat, Anjali Sharma and Sukanya Singh	58711-58720

112	Multiple Feature Analysis for the Early Detection of Parkinson's Disease Extraction of Voice Data through Deep Learning Repudi Pitchiah* and T.Sasi Rooba	58721-58728
113	Reflections of University Teachers over Online Teaching and Assessment during Covid 19: an Empirical Study Rama Verma and Ravi Vanguri	58729-58734
114	Formulation and Evaluation of Antifungal Herbal Soaps using Natural Ingredients by Melt and Pour Method Joan Vijetha R, Archana D, Pavithra K, Pavithra S, Rasiga and Sureka B	58735-58742
115	The Laplacian and Distance Energies of $n$ - Graph Along with its Bounds B.Praba and B.Sudha	58743-58751
116	An Outlook of Student - Teachers towards Online Teaching - Learning: an Empirical Study Rajni Kumari and Ravi Vanguri	58752-58758
117	A New Extraction Method for the Determination of Oxytocin in Milk by UV, HPLC and ELISA L.Nirmala, S. Shakir Basha, K. Vinod Kumar, T. Reshma, B. Deekshitha	58759-58764
118	Science Content Profundity among Pre-Service Teachers at Secondary Level P.Ponnusamy, G.Ponselvakumar, M.Deivam and R.Kingston	58765-58769
119	<i>Leucas aspera</i> (Willd.) Linn. A Potential Plant from North East India: An Overview Madhumita Sarkar and Gunamoni Das	58770-58779
120	A Literary Review on Jeevakarpam in Siddha Literature M.Akila, A.Vasudevi, K.Thayalini, M.V.Mahadevan, V.Mahalakshmi and N.J Muthukumar	58780-58784
121	Tunnel Gas Inspector Sankari Subbiah, Varsha S and Manimegalai B R	58785-58792
122	A Study on Factors Influencing the Consumers to buy Organic Food Products in Bengaluru City K.Rajeswari and Anil. R	58793-58800
123	Educational Apps and Students' Response towards Them Ambika Sankar Mishra, Iram Rizvi, Gyana Ranjan Mishra and Ahaana Mansai	58801-58806
124	Biosynthesis of Zinc Oxide Nanoparticles using <i>Syzygium aromaticum</i> (Cloves) Extract and its Characterization M. Sabitha and D. Helen	58807-58811
125	Control Chart using Length Biased Three Parameter Sujatha Distribution (LBTPRD) S.Muthusamy and D. Venkatesan	58812-58818
126	Knowledge, Attitudes, and Practices (KAP) towards COVID-19: A Cross-Sectional Study in India during First Wave B.K.Priya, Gayatri. R, A. Aishwarya and Vinayak.S	58819-58825
127	Impact of the Internship Programme on the Anxiety of Physical Education and Sports Undergraduates Deepak Bangari, Bindiya Rawat, Ajith Mohan.K.R, Manoj.T.I and Bhanu Pratap	58826-58829

128	Antibiotic Utilization using ATC/DDD System in a Secondary Referral Healthcare Setting of South India Mohanraj Rathinavelu, Veeramani Ganesan and Mallela Vijaya Jyothi	58830-58838
129	Smart Agriculture - Automatic Water Flow and Water Level Monitoring Pally Shelly Chelsy <sup>1</sup> , Shemphang Ryntathiang <sup>1</sup> , A.Swetha Cordelia <sup>1</sup> , Rakoth Kandan Sambandam, Divya Vetriveeran and Jenefa J	58839-58843
130	The Consensus Study : “Designing and Validation of Clinical Tool for Assessment of Volitional Motor Control for Stroke Survivors Sneha Dineshbhai Dhanani (PT) and AmalKumar Bhattacharya	58844-58856
131	Lung Diseases Classification using Deep Learning Technique Hema Rajini.N	58857-58863
132	Clinical Evaluation and Correlation of Post Covid Complications with <i>Oja Kshaya</i> in Ayurveda Vd. Varnika Singh and Sangeeta Gupta	58864-58870
133	Preliminary Phytochemical Screening and <i>In vitro</i> Antibacterial Activity of <i>Sambucus wightiana</i> Wall. ex Wight and Arn. against Human Pathogens. Aamir Sultan Lone and K.C.Ravindran	58871-58879
134	Emerging Analytical Techniques for Mycotoxin Detection in Food and Feed: A Comprehensive Review S Sandeep Kumar, T Reshma and Nawaz Mahammed	58880-58892
135	Design of Intrusion Detection System to Detect Cyber Attacks in IoT Network using Ensemble Technique Sivasankari N and Kamalakkannan S	58893-58900
136	A Study on the Toxicity of <i>Tecoma stans</i> leaf Extracts against Two Common Mosquito Species: <i>Aedes aegypti</i> and <i>Culex quinquefasciatus</i> Jelin Vilvest, M.C. John Milton, Alex Yagoo, Irine Johnson and Keduki Balakrishna	58901-58908
137	Growth Trend of FPOs in Farmers’ Empowerment and Rural Development of Indian Agriculture Sasikanth R, S. Ravichandran, V. Banumathy and D. Venkatakrishnan	58909-58915
138	Identification of Corona Disease using Mobile Net - based Convolutional Neural Network Moufia Justin, Rakoth Kandan Sambandam and A.Swetha Cordelia	58916-58923
139	Wound Healing Activity of Ethanolic Extract of Leaves of <i>Ampelocissus araneosa</i> Venkatesh Sellamuthu and Sheela Angappan	58924-58936
140	Emerging Technologies and Roles of Nanomaterial for Heavy Metal Removal from Water Priyanka Gupta and Gaurav Tamrakar	58937-58945
141	Impact of IIoT and Cloud Adoption in Digital Transformation with A Business Perspective and Key Challenges Prateek Jain and Archana Sharma	58946-58959
142	Prediction of Water Pollution and Water Quality using Data Mining Techniques Sumathi Ganesan	58960-58968



143	Genetic Algorithm Inspired Intelligent COVID-19 Prediction Model using Data Mining Annweshha Banerjee Majumder, Somsubhra Gupta, Dharmpal Singh and Sourav Majumder	58969-58979
144	Play Skill; An Option of Social Inclusionamong Children with Autism Spectrum Disorder Amjad Hussain and Joicey P. Manickam	58980-58984
145	Record of Vulture Nests in Bandipur Tiger Reserve Rajkumar Devaraje Urs, Daniel Sukumardas and T.S.Harsha Rao	58985-58987
146	Application of Invertebrate Animal Models in various Biomedical Diseases and Research Sunil Kumar, Neera Mehra, Raziq Anwer, Gourav Vats, Mukesh Yadav, Nirmala Sehrawat and Anil Kumar Sharma	58988-58999

**Editorial....**



## INTERNATIONAL YEAR OF **MILLETS** 2023

*Physical health is the foundation for a healthy mind, a healthy society and a healthy generation. It is necessary to improve the eating habits to maintain health. It is a fact that living in harmony with nature and food is suitable for*

*man. Countries like India are widely giving more importance to traditional small grains especially millets. Historical studies say that small grains, especially Little Millet (chamai), have been used in the Indus Valley and Harappan civilizations in 2000 BC. These grains are rich in fiber, protein, vitamin A, vitamin B, phosphorus, starch, iron, calcium, etc. Little Millet (Chamai) is considered a special grain among small grains. It contains chemicals that strengthen the muscles between the bones. Similarly, it is known in Tamil literature that honey and millet flour were the main food of Kurinji land dwellers during the time of our forefathers. Adding this to your daily diet will improve your health. Barnyard Millet is one of the small grains and is a rained crop. Globally, Barnyard Millet has been cultivated and used around 2000 years ago in India, Pakistan, China and Japan. The ancient Tamils had the habit of boiling its rice and making it into porridge. Small grains are the symbol of our nation. Although these are short-term crops, they can provide long-term benefits. By cultivating small grains, farmers can recover from the effects of global warming and climate change. Reducing hunger, food security and malnutrition, and achieving health for all are key targets of the Sustainable Development Goals. It is essential to create awareness among the farmers about the small grain crop cultivation system with modern scientific findings and to give more importance to the valuable products prepared based on it. We should ensure that millets are included in our daily diet from our homes. It is necessary for universities and research centers to do high level studies on these foods.*

*"Cultivation of millets can contribute to our collective efforts to empower smallholder farmers, achieve sustainable development, eliminate hunger, adapt to climate change, improve biodiversity, and transform agro-food systems," said FAO Director-General QU Dongyu. Recognizing the enormous potential of millets, which aligns with several UN Sustainable Development Goals (SDGs), the Government of India (GoI) has prioritized millets. In April 2018, millets were rebranded as "Nutri Cereals" followed by the declaration of 2018 as the National Year of Millet, aimed at massive promotion and demand generation. The global millet market is expected to register a CAGR of 4.5% during the forecast period between 2021-2026. We are happy to inform you that many research papers on millets have been published in our journal's previous issues. As researchers, you also have an important role to play in bringing awareness to the public and scholars about the International Year of Millets 2023. Let's celebrate Millets and lead a healthy life.*

**Editor – in - Cheif**  
**IJONS**

**Cover Image : Barasingha – *Rucervus duvaucelii*, Family : Cervidae**

**Photo Credit : T.R.A.Arunthava Selvan, Wildlife Photographer & Science Communicator.**