## **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 ( 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                | OPECACCESS  |
| 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               | https://www.tnsroindia.org.in/                        |
| Registered office     | No 46-141, Meenakshipuram Rd, Near Post Office,       |
| Address               | 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)**

|                         | Dr.S.Vijikumar   |
|-------------------------|--|
| Editor-in-Chief         | Director   |
| Euitoi-III-Ciiiei       | TamilNadu Scientific Research Organisation   |
|                         | Pudukkottai-622003, Tamil Nadu. India.   |
|                         | Editorial Committee  |
|                         | Dr.Neelesh Sharma  |
| Honorable Chief Advisor | Professor, Sher-E-Kashmir University of Agricultural Sciences and  |
|                         | Technology of Jammu (SUKAST), Jammu, University in Wadoora,  |
|                         | Jammu & Kashmir  |
|                         | Dr.C.Anandharamakrishnan   |
|                         | Director,  |
| Honorable Chief Advisor | 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  |
|                         | Dr.G.G.Hammad Ahmad Shadab   |
| Honorable Chief Advisor | Associate Professor, Department of Zoology,  |
|                         | Aligarh Muslim University, Aligarh-202002, Uttar Pradesh, India  Dr. B. Vaseeharan   |
|                         | Professor and Head, Department of Animal Health and  |
| Honorable Chief Advisor | Management, Alagappa University, Karaikudi – 630003  |
|                         | TamilNadu, India   |
|                         | Dr. T.S. Saravanan   |
| Honorable Member        | Sr.Professor of Biotechnology, Dr.M.G.R Educational and Research Institute University,                                       |
|                         | Periyar E.V.R High Road, Maduravoyal, Chennai-600095.  |
|                         | Dr. K.Gurunathan   |
| Honorable Member        | Prof & Head, Department of Nano science & Technology,  |
|                         | Alagappa University, Karaikudi, TamilNadu, India.  |
|                         | Dr.C.Balusami  |
| Honorable Member        | Assistant Professor, Department of Livestock Production and<br>Management, College of Veterinary and Animal Sciences         |
|                         | Pookode-673576.Kerala, India.  |
|                         | <b>Dr.</b> Rajashekhar O, Patil  |
| Honorable Member        | Assistant Professor, Department of Environmental Management,   |
|                         | Sant Gadge Maharaj College of Commerce & Economics, Mumbai 400004, India   |
|                         | Professor.G.Ganesan  |
| Honorable Member        | Professor, Department of Mathematics, Adikavi Nannaya  |
|                         | University, Rajahmundry-533105, Andhra Pradesh, India  |
| ** 11.56                | Dr.M.Krishnan  |
| Honorable Member        | Vice Chancellor, Central University of Tamil Nadu,   |
|                         | Thiruvarur, Tamil Nadu. India  |

| Honorable Member | Mis D.Kalpana Asst.Professor, Department of Chemistry, Bon Secours College for Women,Vilar bypass road, Thanjavur TamilNadu, India.  |
|------------------|--|
| Honorable Member | Dr.H.Syed Jahangir Associate Professor, P.G. and Research Department of Botany, Jamal Mohamed College (Autonomous) Trichirappalli-620020,TamilNadu,India.  |
| Honorable Member | <b>Dr.Sujatha Ilangovan</b> Assistant Professor, PG & Research Department of Zoology, Holy Cross College, Tiruchirapalli-620002. TamilNadu, India.   |
| Honorable Member | <b>Dr.Vasudevan Ayyappan,</b> Post Doctoral Research Associate, Department of Biotechnology, Delaware State University, Dover, Delaware – 19901  |
| Honorable Member | Prof.K.Kumarasamy Emeritus Professor, ICSSR-Senior Fellow Department of Geography, School of Earth Sciences Bharathidasan University Tiruchirappalli - 620 024, TN, INDIA  |
| Honorable Member | <b>Dr. S. Balasubramanian</b> Assistant Professor, Department of Mathematics, Government Arts College (A), Karur – 639 005, Tamilnadu, India.  |
| Honorable Member | Dr.R.Muthukrishnan Associate Professor (SS&AC) & HOD (Crop Management) Department of Soil Science and Agricultural Chemistry, Vanavarayar Institute of Agricultural Manakkadavu, Pollachi-642- 103, TamilNadu, India |
| Honorable Member | Dr.Subbiah poopathi Scientist-G/ Director Grade ICMR-Vector control Research Centre, Medical complex, Indira Nagar,Pondicherry-605006,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 | Dr.Sindhu. K<br>Assistant Professor,<br>Department of Veterinary Pharmacology and Toxicology<br>Veterinary College, Gadag – 582101, Karnataka, 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. P. Santhanam<br>Associate Professor, Department of Marine Science, School of<br>Marine Sciences, Bharathidasan University, Tiruchirappalli.<br>Tamil Nadu. India   |

| 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 | <b>Dr. Komalavalli Narayanaswamy</b> Associate Professor and Head , PG and Research Department of Botany, Alagappa College of Arts & Science, Karaikudi, 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 | <b>Dr. Rina Poonia</b> Associate Professor, Department of Arts, Faculty of Arts & Law, Manipal University, Jaipur, India.   |
| Honorable Member | Dr.M.Shanthasheela Professor Department of Agricultural Extension and Rural Sociology Tamil Nadu Agricultural University, Lawley Road Coimbatore, Tamil Nadu, India - 641003                                  |
| Honorable Member | Dr. M. Lekeshmanaswamy Principal, PG and Research Department of Zoology, Kongunadu Arts and Science College G.N. mills (PO), Coimbatore-641 029, TamilNadu, India.  |
| Honorable Member | <b>Dr. N. Balakrishnan</b> Professor, Directorate of Research Tamil Nadu Agricultural University, Lawley Road, Coimbatore, Tamil Nadu, India - 641003.  |
| Honorable Member | <b>Dr.Syed Mohamed</b> Asst. Prof. Dept. of Zoology, Jamal Mohamed College Tiruchirappalli, TamilNadu, India  |
| Honorable Member | <b>Dr.N.Raman</b> Associate Professor, Department of Chemistry, VHNSN College, Virudhunagar-626 001, TamilNadu, 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.A.Dinakara Rao Professor, Center for Bioinformatics, School of Life Sciences, Pondicherry University, Puducherry, India  |

| Honorable Member | Dr.K.Sivakumar Professor, Department of Botany, Annamalai University, Annamalai Nagar, TamilNadu, India   |
|------------------|---|
| Honorable Member | Dr.A.Kalyana Sundaram<br>Associate Professor(Entomology),<br>Tamil Nadu Agricultural University, Lawley Road<br>Coimbatore, Tamil Nadu, - 641003.                       |
| Honorable Member | Dr.P.Ramachandran Director & Head, Trichy Institute of Regenerative Medicine, Thillai Nagar West,Trichy,TamilNadu, 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 | Dr.V.Violet Dhayabaran Associate Professor ,Department of Chemistry, Bishop Heber College (Autonomous), Puthur, Tiruchirappalli, Tamil Nadu, India.                     |
| Honorable Member | Dr.Ananthnag B Lecturer, Department of Environmental Science, Kuvempu University, Shivamogga, Karnataka, India.   |
| Honorable Member | <b>Dr.G. Rubalakshmi</b> Scientist & Director, GRD Bio Research Centre #3/41, Nanbargal Nagar, Muthukalipatty, Rasipuram TK, Namakkal DT- 37401. T.N. ,India.           |
| Honorable Member | Dr.M.Ramesh Professor, Department of Biotechnology, Alagappa University, Karaikudi-630003,Sivagangai Dt, TamilNadu,India.   |
| Honorable Member | Dr.S.Ezhil Vendan, Scientist, Food Protect ants & Infestation Control Department, CSIR-Central Food Technological Research Institute, Mysore-570 020, Karnataka, India. |
| Honorable Member | Dr.S.Yamini Sudha Lakshmi<br>Assistant Professor,<br>Department of Medical Biochemistry,<br>University of Madras,Taramani Campus,<br>Chennai-600113,TamilNadu,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 Department of Vegetable Crops, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore-641 003, Tamil Nadu,India.   |
| Honorable Member | Dr.C.Thamaraiselvi Assistant Professor, Dept. of Biotechnology Mother Teresa Women's University Kodaikanal-624101,TamilNadu,India.   |
| Honorable Member | Dr.R.Selvaraj Department of Veterinary Physiology, Centre for Laboratory Animal Technology & Research (CPCSEA approved), Sathyabama University, Chennai – 600 119.   |
| Honorable Member | Dr. Hasan S.A. Jawad<br>Animal Production Department,<br>Agricultural Faculty,<br>University of Baghdad, Baghdad, Iraq.  |
| Honorable Member | Dr.C.Kathirvelan Assistant Professor, Department of Animal Nutrition Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Namakkal -637002. TamilNadu, India.              |
| Honorable Member | <b>Dr. John Abraham</b> Assistant Professor, Department of L.P.M.,College of Veterinary and Animal Sciences, Pookode, Wayanad. 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. 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.Ranjith.D Assistant Professor, Department of Veterinary Pharmacology and Toxicology, College of Veterinary and Animal Sciences, Pookode, Wayanad – 673576. Kerala, India |
|------------------|---|
| Honorable Member | Dr.Prantosh K. Paul Assistant Professor, 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.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.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 | Mr.S.M.Prasad Assistant Professor, Department of Nutrition and Dietetics, Sadakathullah Appa College, Rahmath Nagar, Tirunelveli-627011. T.N.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.M.N.Harisha Guest Lecturer, Department of Wildlife and Management, Kuvempu University, Jnanasahyadri, Shankaraghatta - 577451. Shimoga, Karnataka, India                 |
|                  |   |

| Honorable Member | <b>Dr.P.Jeyaseelan</b> Department of Agricultural Extension, Faculty of Agriculture, Annamalai University, Annamalai Nagar – 608 002, Cuddalore   |
|------------------|---|
| Honorable Member | <b>Dr.Suja George</b> Principal Scientist, Department of Biotechnology, M.S. Swaminathan Research Foundation, Taramani, Chennai 600113.   |
| Honorable Member | <b>Dr.Muthuraman A.,</b> Senior Lecturerm , Pharmacological unit, AIMST University, 08100 Bedong, Kedah, Malaysia   |
| 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.Y.V. Krishna Reddy Department of Agricultural Engineering, Aditya Engineering College, Surampalem- 533437, East –Godavari, A.P., 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 | Dr.Mathews Plamoottil Asst. Professor in Zoology, Govt. College Chavara, Kollam, Kerala, India  |
| Honorable Member | Dr.N.Vijayakumar<br>Assistant Professor<br>Dept.of Biochemistry & Biotechnology<br>Annamalai University, Annamalainagar-608 002,<br>Tamilnadu, India.   |
| Honorable Member | <b>Dr. E.Emimal Victoria</b> Assistant Professor, Department of Zoology Sri Meenakshi Govt. Arts College for Women, Madurai, TamilNadu, India   |
| Honorable Member | Dr.C.Kandeepan Asst.Professor and Head, PG Department of Zoology, A.P.A College of Arts and Culture, Palani-624601, Dindigul Dt. Tamil Nadu,India.  |

| Honorable Member | <b>Dr.A.Radha</b> Assistant Professor, Dept. of Zoology Kunthavai Naacchiyar Govt Arts College for Women, Thanjavur-7, TamilNadu, India.  |
|------------------|---|
| Honorable Member | Dr.P.Ramachandran Director & Head, Trichy Institute of Regenerative Medicine, Thillai Nagar West,Trichy,Tamil Nadu,India.   |
| Honorable Member | Dr.B.Kaleeswaran Assistant Professor, Dept. of Zoology & Biotechnology, A.V.V.M.Sri Pushpam College, Poondi, Thanjavur, TamilNadu, India.   |
| Honorable Member | Dr.S.Yamini Sudha Lakshmi Assistant Professor, Department of Medical Biochemistry, University of Madras, Taramani Campus, Chennai-600113, Tamil Nadu, India.                                    |
| Honorable Member | Dr.K.Nagarajan Associate Professor & Head Department of Zoology VHN Senthikumara Nadar College, Virudhunagar, TamilNadu, India.   |
| Honorable Member | <b>Dr.S.Lingathurai</b> Assistant Professor, Department of Zoology and Research Centre, at Aditanar College of Arts & Science, Virapandianpattinam, Tiruchendur - 628 216 Thoothukudi District. |
| Honorable Member | Dr.D.Sivaraman Scientist-C Department of Pharmacology, Sathyabama University, Jeppiaar Nagar, Rajiv Gandhi road, Chennai- 600 119. TamilNadu, India.  |
| Honorable Member | <b>Dr.Suja George</b> Principal Scientist, Department of Biotechnology, M.S. Swaminathan Research Foundation, Taramani, Chennai 600113.   |
| 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 | Subburaj. M Authorised Officer, Kolkata Seaport, Kolkata International Airport and Haldia port 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 |
|------------------|---|
| Honorable Member | Dr.Ga.Bakavathiappan Associate Professor in Zoology SBK College, Aruppukottai - 626 101, TamilNadu, India E.Mail: ga.bakavathiappan@gmail.com   |
| Honorable Member | Dr.Omkar Prasad Baidya<br>Assistant Professor,<br>ESI-PGIMSR and ESIC Medical College,<br>Joka, Kolkata,West Bengal, 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. Horne Iona Averal  IQAC Coordinator, Associate Professor  PG Research Department of Zoology, Holy cross college (Autonomous), Trichy. TamilNadu, India.   |
| Honorable Member | Dr. S. Thenmozhi Assistant Professor (SS & AC) Soil Fertility and Irrigation Water Management TNAU, Coimbatore, Tamil Nadu, India   |
| Honorable Member | Dr. S. Suganya Kanna Associate Professor, (Agricultural Entomology), Agricultural College and Research Institute, Tamil Nadu Agricultural University. Coimbatore, Tamil Nadu, India   |
| Honorable Member | Dr.K.Saravanan Assistant Professor ,PG & Research Dept. of Zoology, Nehru Memorial College (Autonomous), Puthanampatti, Tiruchirappalli, TamilNadu,India  |
| Honorable Member | Dr.C.Ravinder Singh Chief Scientist - Tissue Culture & Hydroponics AAKASH GREEN RESEARCH PRIVATE LIMITED 14B/1, Bryant Nagar, 9th Street East Thoothukudi, Tamil Nadu - 628008, India.  |

| Honorable Member | Dr.M.Biruntha Assistant Professor, Department of Animal Health and Management, Alagappa University, Karaikudi,  |
|------------------|---|
| Honorable Member | TamilNadu,India  Dr.S.Sasikala  Head&Associate Professor,  Department of Computer Applications,  Hindusthan College of Arts and Science,  Coimbatore - 641 028, Tamilnadu, 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.Manigopa Chakraborty Chief Scientist cum University Professor Department of Genetics & Plant Breeding, Birsa Agricultural University, Kanke, Ranchi, Jharkhand – 834006., India.               |
| Honorable Member | Dr.Huda Falah Hasan Radi Alqaraghuli<br>Assistant Professor,<br>College of Veterinary Medicine,<br>University of Baghdad,Baghdad, Iraq.   |
| Honorable Member | Dr.Arvind Prasad Dwivedi Lecturer, Department of Biochemistry, Govt. Sanjay Gandhi Smriti College, Sidhi, Madhya Pradesh, India.  |
| Honorable Member | Dr.A.Suganya Associate Professor, Department of Agricultural Science, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India.  |
| Honorable Member | Dr.M.Karthikeyan Assistant Professor (Plant Pathology) Department of Vegetable Crops ,HC&RI Tamil Nadu Agricultural University ,Coimbatore TamilNadu,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.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. Saikat Sen Dean of Faculty, Faculty of Pharmaceutical Sciences Assam down town University, Panikhaiti, Guwahati, Assam - 781026, India  |
| Honorable Member | Dr. P. Chandramani Professor, (Agricultural Entomology), Agricultural College and Research Institute, Tamil Nadu Agricultural University Kudumiyanmalai – 622 104. Pudukkottai Dist., Tamil Nadu, India |
| Honorable Member | <b>Dr.S.Prema</b> Associate Professor of Computer Science, Arulmigu arthanareeswarar arts and science college, Tiruchengode, Tamilnadu  |

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

 Volume XV (15)
 April 2024

 CODEN: IJONS (83) (2024)
 ISSUE 83
 ISSN: 0976 - 0997

| S. No. | CONTENTS  | Page No.    |
|--------|---|-------------|
| 146    | Plastic Degrading Enzymes and Microbes<br>Dipsikha Bordoloi1, Nishita Acharjya and Biswa Prasun Chatterji   | 72126-72131 |
| 147    | A Comprehensive Survey of Image Encryption Techniques Enhanced By<br>Digital Signatures<br>C.Sasthi Kumar and N.Kanagaraj   | 72132-72138 |
| 148    | Improving Deep Learning for Multiple Code Clone Detection through Pretrained Models S Karthik and P Prabhakaran   | 72139-72147 |
| 149    | Mathematical Analysis of New SEIQR Model via Laplace Adomian Decomposition Method N. Jeeva and K.M. Dharmalingam  | 72148-72157 |
| 150    | Evaluation of the Anti-Hyperlipidemic Potential of A Novel Anti-Diabetic Polyherbal Preparation in Streptozotocin-Induced Diabetic Rats and its Formulation in to a Capsule Dosage Form Uppara Venkatesh and B. V. Ramana | 72158-72168 |
| 151    | An Innovative Review about Audio and Video Collaboration for Event Detection using Deep Learning Approaches M.Rajamanogaran and G. Karthikeyan  | 72169-72178 |
| 152    | Bayesian Predictive Analysis for the Chris-Jerry Distribution with Various Priors<br>G.Meenakshi and B. Balachandar   | 72179-72186 |
| 153    | Nutritional and Functional Evaluation of Pomegranate Peel Powder Incorporated Waffles S. Mohana and Arivuchudar.R   | 72187-72193 |
| 154    | Impact of Artificial Intelligence and Their Influence on Future Workforces and Employment R. Prema and K. Subramaniam   | 72194-72200 |
| 155    | An Experimental Analysis for Forgery Detection of Handwritten Signatures using Deep Learning Darshini Vipinchandran and Jency Jose  | 72201-72206 |
| 156    | Real-Time Facial Recognition using Drone<br>Arunachalam. R and Poovarasan Selvaraj  | 72207-72214 |
| 157    | A Review on Enhancing Educational Outcomes: Leveraging Educational Data Mining for Predictive Analysis D. Gajalakshmi, P.V.Praveen Sundar and R. Denis  | 72215-72225 |
| 158    | A Stacking Ensemble of Deep Cluster (En-MHSAMKFC-CNN) Based Deep<br>Learning for Cancer Classification Approach<br>K.Prema  | 72226-72233 |
| 159    | A Comphrensive Review and Meta-Analysis on Psychological Distress<br>among1Students1Using Machine Learning Techniques<br>Maria Suman A and Saleema J S  | 72234-72242 |

| 160 | Determinants of Maternal Mental Health In India: A Systematic Review and<br>Meta- Analysis<br>Anugraha Mathew and J S Saleema   | 72243-72248 |
|-----|---|-------------|
| 161 | Enhanced Method of Emotion Detection and Face Recognition for Attendance Monitoring Using Machine Learning Jeyalakshmi, S. Deepak Prakash and N. Sanjay Kumar                                       | 72249-72255 |
| 162 | Performance Analysis of Gray Level Image Segmentation by Using Different Methods T.Brinthaguru P. Karthick, and P.Vinoth  | 72256-72263 |
| 163 | A Hybrid CNN, LSTM, and Stacking Ensemble Approach for Improved<br>Sentiment Analysis<br>Kanimozhi.J and A.Balraj   | 72264-72269 |
| 164 | An AI Based Keystroke Dynamics for User Authentication<br>Logidha V and Karthik S   | 72270-72275 |
| 165 | IoT Awarecensored Regressive Gaussian Kernelized Recurrent Deep<br>Neural Network for Automatic Agriculture Prediction<br>R.Hemalatha and G.Nivashini   | 72276-72282 |
| 166 | AI Based Ayurvedic Plant Divination<br>Usha M S , Navyashree S and Pratheek Raj Urs C P   | 72283-72288 |
| 167 | Analysis of Traditional with Conventional RSA<br>S. Nirmala Devi and M. Ganaga Durga  | 72289-72294 |
| 168 | A Speech Recognition-Enabled Game using Python Integrating Twitter Text<br>Mining Techniques<br>Simritha R and Tulasimala BN  | 72295-72300 |
| 169 | IoT - Powered Bio sensors Lead the way in Environmental Sensing in the Digital Age<br>Sumanth S and Siddarama S   | 72301-72308 |
| 170 | Diagnosis of Grape Leaf Disease using CNN<br>Kiruthika S, Suriya K and Pooja S  | 72309-72315 |
| 171 | Study of Image Segmentation of Color Image by Various Methods<br>P. Vinoth, P. Karthick and T.Brinthaguru   | 72316-72324 |
| 172 | Memory Mate: A Mobile Application for Empowering Alzheimer's Patients<br>M.Sridhar and R.Sankaran   | 72325-72329 |
| 173 | Detection and Classification of Leaves in a Video: A Literature Review Vidyashankara, Hemantha Kumar G, Navena M, Sumanashree Y S and Mallesh R   | 72330-72341 |
| 174 | A Data Hiding Method Using Reduced Difference extension to develop the Stego Quality Sumanth S and Siddarama S  | 72342-72348 |
| 175 | Recognizing Handwritten Digits Using Deep Learning Algorithms<br>N. Sumathi, Pranesh. K.N and Siddarth A.K  | 72349-72358 |
| 176 | Security, Trust, and Privacy of Information Sharing In Social Networking<br>Sites: A Systematic Literature Review<br>V. Padmaja, MuniKrishnappa AnilKumar, Sirigiri Srikanth, Pocha Sri<br>Chandana | 72359-72361 |
| 177 | Detecting Deep Fakes: Leveraging Convolutional Neural Networks for Fabricated Media Classification Prem Sagar   | 72362-72369 |

| 178 | Crime Hotspot Generation for Crime Rate Analysis using K-Means<br>Clustering Algorithm<br>Safa Maryam, Zuha Mariam and Renju K  | 72370-72379 |
|-----|---|-------------|
| 179 | Feed Forward Neural Network Approach To Binary Network Intrusion<br>Detection<br>D. Sampath Kumar, Vidya K and Atshaya K  | 72380-72387 |
| 180 | Strategies for Optimizing Low Power in VLSI System Design: A Comprehensive Analysis of Network Sensors M.Thamarai selvan and M.Prasannakumar  | 72388-72394 |
| 181 | An Application of Generative AI: Hybrid GAN-SMOTE Approach for<br>Synthetic Data Generation And Classifier Evaluation on Breast Cancer<br>Dataset<br>Ayyakkannu Selvaraj, S. Rethinavalli and A.Jeyalakshmi | 72395-72400 |
| 182 | The Role of Plant Growth Promoting Bacteria: Improving Plant Growth and Drought Tolerance Prabha. M, Prasanna. J, Punitha. S, Ragavi. S, Devipriya. M, Naveen Banu. M and Karthy. E.S                       | 72401-72411 |
| 183 | Machine Learning-Powered Comparative Analysis of Autism Diagnosis<br>Tools: Enhancing Effectiveness<br>Aruna P. Gurjar and Satyen Parikh  | 72412-72420 |
| 184 | A Study on Flow of Market Information in the Supply Chain of Banana in Andhra Pradesh<br>Mehazabeen. A and G. Srinivasan  | 72421-72424 |
| 185 | Unveiling Scholarly Insights : Analyzing Social Media Advertising<br>Literature through Bibliometric Analysis, Science Mapping and<br>Visualization Techniques<br>Nitika and Mohit                          | 72425-72441 |
| 186 | A Study of Prevalence of Occupational Stress among Doctors and its Impact<br>on Job Performance<br>M.Nisa, M.Saranyadevi, M.S.Kamalaveni and K.Vaitheeswari Menaga  | 72442-72455 |
| 187 | Analyzing Business Crimes by Implementing OSINT Architecture Yuthvek .M J, Adheena Shibu, Charithra Y and K. Kalaiselvi   | 72456-72464 |
| 188 | Cross-Cultural Management Challenges in International Business<br>Operations<br>M.Shalini and M.Rohith Sundar   | 72465-72470 |
| 189 | Business Analytics: Driving Sustainability through Technology of Predictive Maintenance M. Shalini, Anushya B and Jaysre P  | 72471-72477 |
| 190 | Adapting to the Dynamic Digital Marketing Landscape: Trends and Strategies for Success Saikumari. V, Prathosh K.D, Priyanka R and Ramya Amalraj S   | 72478-72483 |
| 191 | A Study on the Influence of Digital Finance on Individual Behaviour towards Financial Investments  Dhanya Nair  | 72484-72491 |
| 192 | The Impact of Remote Work on Employee Engagement: Strategies for Building Connection in a Virtual Environment Tiya Thomas and S.Annie Priyadharshini  | 72492-72499 |

| 193 | Green Synthesis, Characterization of Silver Oxide Nanoparticles and its<br>Photo Catalysis, Biological Studies<br>Madhu R, Pruthviraj K, Marulasiddeshwra M B, Sreenivasa S, Sunil K,<br>Suresh D and Shet Prakash M                      | 72500-72506 |
|-----|---|-------------|
| 194 | Synthesis and Characterization of ZnO Nanostructured Sensors via Co-Precipitation: A Comprehensive Study for Toxic H2S Gas Detection Vishal S. Kamble, Sanjay K. Patil, Shailesh N. Vajekar, Jyotsna G. Pargaonkar and Suresh T. Salunkhe | 72507-72514 |
| 195 | Nanoparticles as Food and Medicine: a Systematic Analysis of Recent<br>Nanotechnology Developments in Fishery Industry<br>Vasantharaja D, Nagaraj S, Peetha Sarika and Vimala V   | 72515-72531 |
| 196 | Exploring Competency Profiles among Emergency Department Nurses: Factors Shaping Skills and Overcoming Barriers Suresh K, Thiruvenkadam Thiagarajan and Ganesan Alias Kanagaraj Mariappan   | 72532-72543 |
| 197 | Revitalize Through Technology: How Online Shopping Habits of Youth Shape Family Dynamics<br>Vani Haridasan, Kavitha muthukumaran, Vidyaa Lakshmi P and Srinithi JP  | 72544-72550 |
| 198 | The Impact of AI Technology Adoption on Investor Decision-Making in the Indian Financial Market M. Ganesan Alias Kanagaraj, Thiruvenkadam Thiagarajan and K.Suresh  | 72551-72562 |
| 199 | Role of Self-Help Groups in the Techno-Economic Environment<br>Thiruvenkadam Thiagarajan and Sudarsan Jayasingh   | 72563-72571 |
| 200 | Fostering Environmental Responsibility: Strategies and Challenges in Green Marketing<br>Saikumari V , Sumeitha M, Shri Varshini S and Snegha S  | 72572-72577 |
| 201 | Effect of Alccofine on Water Absorption and Sorptivity of Engineered Cementitious Composites Containing Mono and Hybrid Synthetic Fibres R.Prashanthi, K.Sakthimurugan and G.Pugazhmani   | 72578-72589 |
| 202 | A Study on the Urine Analysis of Selected Teenagers using Dipstick Method T. Amala Arockia Raj, M.Muniya Naik, K.Janardhana, A.Govardhan Naik, A. Jayasankar, D. Veera Nagendra Kumar and V. UdayKiran                                    | 72590-72596 |
| 203 | Automatic Power Factor Correction Unit using Arduino for Smart Homes<br>Krishnaveni S, Marutham Rathna Valli M, Keerthana S and Kaviyamalar<br>A.D  | 72597-72603 |
| 204 | Pilot Study on Concordance of Microsatellite Instability (MSI) Testing by Idylla Point of Care PCR with Immunohisto chemistry Lavanya.N, Sussela.K, Pratyusha.A, Subramanyeshwar Rao.T and Raju. K.V.V.N                                  | 72604-72609 |
| 205 | On $\alpha^*$ g^# $\psi$ -closed Sets in Topological Spaces S.Pooja, M.Vigneshwaran and L.Vidyarani   | 72610-72617 |
| 206 | Further Studies on Continuity of $\gamma$ *grw Closed Set with Grill M.K. Eswarlal, Dr. R. Bhavani  | 72618-72622 |
| 207 | Cyclotide Prevents Neuronal Cell Death Induced by 6-Hydroxydopamine<br>Neurotoxin<br>Shobana C, Usharani B and Rohini D   | 72623-72630 |
|     |   |             |

| 208 | A Systematic Analysis of Ethnomedicinal, Elemental, Phytochemical and Pharmacological Properties of Indian Mallow-Abutilon indicum (linn.) sweet (Malvaceae) Rishidha VM, Vasantharaja D and Muthuviveganandavel V                       | 72631-72646 |
|-----|--|-------------|
| 209 | Tourism Sustainability at Mahabalipuram Heritage Site - Impact on Farmer Community P. Veeralakshmi, Prabavathi Venugopal , Jeevanantham. N and M. Sampath Nagi   | 72647-72657 |
| 210 | Analysis of Fuzzy Random Graphs for Decision Making<br>N. Sarala and R. Abirami  | 72658-72665 |
| 211 | Assessing Periodontal Inflammation in Obese Individuals: Introducing Periodontal Inflammatory Surface Area (PISA) As A Comprehensive Measurement for Periodontitis -Pilot Study V. Ramya Julius Amaldas J. Bhuvaneswarri and Aarthinisha | 72666-72674 |
| 212 | The Significance of Hormones in Governing the Physiology of Menstrual Cycle<br>Shital C. Shah  | 72675-72683 |
| 213 | 9.5<br>Priyal Ninama, Rushi Gajjar and Gaurav Patel  | 72684-72689 |
| 214 | Physico -Chemical assessment of Groundwater quality in Bagepalli taluk of Chikballapur district, Karnataka<br>Ramesha Iyyanahalli and Kiran B.R.   | 72690-72705 |
| 215 | Impacts of Microplastic Pollution in the Nanjarayan Lake - an Issue of Concern<br>M. Nandhini and. J.Jagatheeswari   | 72706-72710 |
| 216 | The Effect of Whole-Body Vibration and Mulligan Mobilization with Movement in the Reduction of Pain and Disability in Subjects with Knee Osteoarthritis P. Saranraj, S. Rajadurai and P. Susmitha B. Arun, P. Savitha                    | 72711-72715 |
| 217 | A Multivariate Regression Analysis of RMT<br>G. Gomathi Eswari and A. Rameshkumar  | 72716-72724 |
| 218 | Comprehensive Review: to Enhance Absorption and Bioavailability of<br>Herbal Drug by Topical and Oral Route using Phytosome<br>Manisha Katkade, Rahul shivarkar and Shashikant Dhole   | 72725-72742 |
| 219 | Accurate Equitable Domination in Graphs P.Nataraj, A. Wilson Baskar and V.Swaminathan  | 72743-72746 |
| 220 | Anti-Hyperglycemic Effect of Siddha Varmam Formulation Neerizhivu Kudineer in Streptozotocin Induced Diabetics Rats Thirunarayanan G, Suvedha P and Jayalakshmi J  | 72747-72755 |
| 221 | In silico Analysis to Validate the Activity of Quinazolinone Derivatives against Type 2 Diabetes Mellitus - A Computational Drug Discovery Study Mincy Mathew, D.Kilimozhi, Santhosh M Mathews and Anton Smith                           | 72756-72769 |
| 222 | Max-Min and Min-Max Operators on Quin – Terranean Fuzzy Numbers<br>P.Rajarajeswari and T.Thirunamakkani  | 72770-72782 |
| 223 | Artificial Intelligence's Place in Radiology: Current uses and Future<br>Prospects<br>Naresh Kumar, Bimal Nepal and Dinesh Kumar and Manvee Rai  | 72783-72792 |

| 224 | The Prevalence of Anemia, along with its Associated Factors and Treatment Umme Ayman, Pallavi P, Sophy Thomas, Rahamtullah Khan, Manikanta BD and Shailesh yadav           | 72793-72800 |
|-----|--|-------------|
| 225 | Orodispersible Tablets: A Review<br>G.S.Sharma, Namami Dutt ,R. Shireesh Kiran and T. Rama Rao   | 72801-72808 |
| 226 | An Update Review on Iridoid Glycosides: Major Focus on Phytochemical and Pharmacological Versatility Monika and Neeraj Kumar   | 72809-72816 |
| 227 | Application of Nanotechnology in Healthcare Sector: A Perspective Review V.Sireesha, N. Chaitanya, K. Megana and Meghana.Ch  | 72817-72823 |
| 228 | Optimization and Partial Purification of Protease from Bacillus Subtilis<br>AD20 Isolated from Dairy Effluent<br>Deepika Jothinathan, Anjali Kumari, Lavanyasri Rathinavel | 72824-72836 |
| 229 | Homomorphism in Bipolar Valued Vague Subnear Rings of a Nearring S. Kamalaselvi and B.Anandh   | 72837-72842 |
| 230 | Ecotrail Energy Efficient Routing Algorithm (Eeera) for Green Internet of Things<br>A. Leolin Arockiadass, T. Kokilavani, A. Aloysius and Y. Sunil Raj                     | 72843-72849 |
| 231 | On Neutrosophic $\Lambda_{P^-}$ Neighbourhood and its Functions in Neutrosophic Topological Space C. Reena and M. Karthika   | 72850-72860 |
| 232 | A New Perspective of Connectedness and Hyperconnectedness in Soft<br>Nano Topological Spaces<br>P.Anbarasi Rodrigo and P.Subithra  | 72861-72870 |
| 233 | Discrete Labeling of Some Trees A.Punitha Tharani and P.Saradha  | 72871-72877 |
| 234 | Cardinal Labeling of Some Standard and Special Graphs A. Punitha Tharani and S. Pratiksha  | 72878-72882 |
| 235 | Determinant of Some Cyclic Graphs using Incycle Vertices<br>Punitha Tharani A and Anesha H R   | 72883-72890 |
| 236 | Some New Families of Sum Divisor Cordial Graphs<br>K. Periasamy K. Venugopal and P. Lawrence Rozario Raj   | 72891-72896 |
| 237 | Best Proximity Pair Theorem for Generalized Reich type Cyclic Meir-Keeler<br>Contraction Mapping on Topological Spaces<br>S. Sahayarajjoseph Nirmalkumar and S. Sujith     | 72897-72900 |
| 238 | Analysis on Online Learning of Mathematics and Student's Attitude<br>A. Aruna and PL. Meenakshi  | 72901-72906 |
| 239 | A Diagnosis of Renal Disease using Multiclass with ERF Classifier Learning Techniques<br>K. Kottaisamy and S. Chidambaranathan   | 72907-72914 |
| 240 | Eccentricity Energy of Cover Pebbling Graphs C. Muthulakshmi@Sasikala and A. Arul Steffi   | 72915-72919 |
| 241 | Implementation of Time series Control charts using PCA and ARIMA Model R. Sasikumar and M.Sujatha  | 72920-72930 |
| 242 | The Significance of Visual Design Principles in Enhancing Data Visualization: A Conceptual Perspective M. Jebakumar  | 72931-72936 |

| 243 | Investigations of Efficient Nonlinear Optical Tetra Glycine Ammonium Sulphate (TGAS) Crystal for Optoelectronic Applications Josephine Gladiya M, Anuradha G V, Sivashankar V, Helina B                         | 72937-72947 |
|-----|---|-------------|
| 244 | Impact of Artificial Intelligence in Automobile Industry in India<br>K.Kevin Selva and Dr.A.Natarajan   | 72948-72955 |
| 245 | Energy Management Strategy for Hybrid Energy Storage - Electric Vehicles<br>Based on Intelligent Controllers<br>Gundu Venu, Giriprasad Ambati, Chamakura Krishna Reddy  | 72956-72961 |
| 246 | Current Evidences of Physiotherapy Interventions for Unilateral Neglect in<br>Stroke Individuals: A Systematic Review<br>Nirmitee Honap and Suraj B. Kanase   | 72962-72973 |
| 247 | Evaluation of Salbutamol's Degree-Based and Degree-Splitting Topological Indices<br>R.Revathy   | 72974-72980 |
| 248 | The Impact of COVID 19 Pandemic on the Professional Learning and Evalu ation of Undergraduate Pharmacy Students Srujankumar Reddy Pothula, Sravani Jollireddy, Dipak Dnyandeo Bharambe and Mohanraj Rathinavelu | 72981-72987 |
| 249 | Assessing the Suitability of Groundwater for Irrigation in Pandavapura Taluk, Mandya District, Southern Karnataka, India Madhu R and P Madesh   | 72988-72999 |
| 250 | Functional Recovery Following Early Strengthening After Middle Third<br>Clavicle Fracture-A Single Case Study<br>Veluri Rakesh, Arunachalam Ramachandran and Anandhan Duraisamy                                 | 73000-73004 |
| 251 | GC/MS Analysis of Methanolic Extract of Pancratium triflorum Roxb. bulbs Rakkimuthu R, Neethu Krishna K, Sathishkumar P, Ananda Kumar AM and Sowmiya D  | 73005-73008 |
| 252 | Novel Method of Controlling the Self Focusing and De-Focusing Length by<br>using Non-Linear Kerr Material and Electro-Optic Materials<br>Rupali Maji  | 73009-73015 |
| 253 | Effect of Cold therapy for Reduction of Perineal Pain among Postnatal<br>Mothers in Selected Hospitals, Assam<br>Bhagya Priya Phukan, Nongmeikapam Monika and Zulanbeni C Kithan                                | 73016-73022 |
| 254 | Customer Perception towards Township Apartment<br>A. Pappu Rajan, P.J. Rosario Vasantha Kumar and Sunil Raj Y   | 73023-73029 |
| 255 | For Multi-Valued Mappings, Fixed Point Theorems in Complex Valued b-<br>Metric Spaces<br>Arul Xavier A and Maria Joseph J   | 73030-73034 |
| 256 | A Nonlinear Mathematical Model for Asthma: Exploring the Impact of Environmental Pollution<br>N. Vasuki and D. Jasmine  | 73035-73041 |
| 257 | A Local and Global Stability Analysis of the Graves Disease Model<br>G. Lavanya and D. Jasmine  | 73042-73050 |
| 258 | Some New Results on Harary Energy of Graphs<br>M. Deva saroja and V. Vinisha  | 73051-73056 |
|     |   |             |

| 259 | Parameter Uniform Convergence of a Finite Element Method for a Singularly Perturbed Linear Reaction Diffusion System with Discontinuous Source Terms and Same Perturbation Parameter Vinoth Maruthamuthu and Joseph Paramasivam Mathiyazhagan | 73057-73063 |
|-----|---|-------------|
| 260 | Study on Awareness about Recent Regulations in UPI among Users<br>R.Ragavi and PL. Meenakshi  | 73064-73067 |
| 261 | Detecting and Mitigating Cybersecurity Threats in Smart Grids using KMeans Clustering Ramya Hyacinth Lourdusamy and Gomathi Venugopal   | 73068-73074 |
| 262 | Pair Mean Cordial Labeling of Hexagonal Snake, Irregular Quadrilateral Snake and Triple Triangular Snake<br>R. Ponraj and S. Prabhu   | 73075-73081 |
| 263 | Some Properties of b# Interior and b#-Closure in Intuitionistic Topological Spaces C. Velraj and R. Jamuna Rani   | 73082-73086 |
| 264 | On the Computation of the Metric Dimension of Unit Graph<br>S.Nithya and V.Prisci   | 73087-73091 |
| 265 | Predictive Modeling for Breast Cancer Detection: A Logistic Regression<br>Approach<br>Imran Qureshi   | 73092-73098 |
| 266 | Modelling Threshold Logic Neuron as a Linear Filter for Pattern Classification<br>S. Arulraj and M. Subbulakshmi. N. Murugan  | 73099-73104 |
| 267 | Edge Sum Divisor Cordial Labeling of Crown & Comb Graphs A. Anto Cathrin Aanisha and R. Manoharan   | 73105-73109 |
| 268 | Enhancing Data Science Resources Within The Academic Library P.J. Rosario Vasantha Kumar  | 73110-73116 |
| 269 | A Role of Artificial Intelligence In Smart Building AR.A.Bhuvaneshwari and A.Natarajan  | 73117-73122 |
| 270 | LTE: Performance Investigation for The Mode of Interfacing in The Integrated Hetnets Burhanuddin Mohammad and Imran Qureshi   | 73123-73132 |
| 271 | Descriptive Analytics On Healthcare Data –A Systematic Approach To Enhance Patient Engagement Lavonya A, Sunil Raj Y, Charles S and A Leolin Arockiadass  | 73133-73140 |
| 272 | BER Performance Evaluation of DWDM Optical Network at Various<br>Channel Spacing<br>Poorna Lakshmi Uppalapati, Kotika Sai Kumar, Lingaiahgari Amulya and<br>Arige Sai Yashwanth   | 73141-73147 |
| 273 | Taxonomic Enumeration of Natural Dyes from India: Sir Thomas Wardle's Collection<br>Sudeshna Datta, Surendra Kumr Sharma, Manas Bhaumik and Kangkan Pagag   | 73148-73155 |
| 274 | Optimum Solution on Two Stage Flow Shop Scheduling Model with Identical Parallel Machines<br>Khushboo Malhotra, Deepak Gupta, Sonia Goel and A. K. Tripathi   | 73156-73161 |
| 275 | Insights into the Photo Catalytic Degradation of Phthalates: Current Trends and Future Applications for Environmental Remediation Urvashi, Gunjan Chauhan   | 73162-73171 |
|     |   |             |

| 276 | Preparation of Graphene Oxide: Various methods and their comparison<br>Ajay Jakhar and Jyoti Sharma   | 73172-73178 |
|-----|---|-------------|
| 277 | A Review of House Dust Mites (HDMs) induced allergy, its Diagnosis and Treatment Asha Poonia, Nisha Dhull, Sharda Kalra, Parvati Sharma, Vikash , Amit Kumar & Kapish Samota  | 73179-73186 |
| 278 | A brief overview on Schiff Base Synthesis techniques<br>Gurdeep Sangwan, Jyoti Sharma, Avinash Rani and Sonu Prasad   | 73187-73192 |
| 279 | Chemistry of Iridium(III)-3-hydroxy-2-tolyl-4H-chromen-4-one: The Spectrophotometric Analysis, Radical Scavenging Activity and Computational Studies Khushboo Devi, Nivedita Agnihotri, Gulshan Kumar   | 73193-73205 |
| 280 | Review of Covalent Organic Frameworks and their Applications<br>Shipra Sharma, Satvinder Khatkar, and Bhawna Pareek   | 73206-73212 |
| 281 | Catalytic role of Carbon Quantum Dots in Super Capacitor Applications<br>Synthesis, Characterization, and Properties<br>Karamveer Sheoran and Samarjeet Singh Siwal   | 73213-73218 |
| 282 | Spatial analysis of pH, EC and TDS levels in supply water through ArcGIS mapping in different blocks of Ambala district, in North India Saloni Kamboj, Nirankar Singh and Brajesh Saxena  | 73219-73226 |
| 283 | Fluorine-Free Hydrophobic Coating on Polyurethane Foam for Oil Spill<br>Absorption from Water Surface<br>Lipika and Arun K. Singh   | 73227-73234 |
| 284 | Gibberellic Acid Treated Seeds Improves Salinity Induced Inhibition of<br>Germination and Seedling Growth of Thespesia populnea (L.) Soland. ex<br>Correa, Morinda citrifolia L., and Markhamia lutea (Benth.) K.Schum<br>Preethi Jenifer Praticia.S and Kanchana.M | 73235-73244 |
| 285 | Method Development and Validation of Chloramphenicol in Commercially<br>Available Milk by LC-MS/MS<br>Syed Rihana, Vidyadhara Suryadevara and Venkata Rao Vutla   | 73245-73256 |
| 286 | Foliar-applied Alfa-Tocopherol and Brassinolide Enhance Salt Tolerance,<br>Growth Improvement, and Pigment Composition in Vigna radiata L. (Co-6)<br>Variety Grown under NaCl Stress<br>Aamir Abdullah and R. Somasundaram  | 73257-73268 |

#### Editorial..



The United Nations has declared this year as the International Year of Camelids 2024. Camels are generally adapted to dry deserts with low rainfall. The ancestral species of the

camel appeared in North America about 45 million years ago. Then they migrated southwards. Today, camels have evolved into a specialized animal that survives in extreme heat and water scarcity in the widespread deserts. Indigenous peoples and local communities living in more than 90 countries around the world depend on camels for their livelihood. Camels include alpacas, bactrians, dromedaries, guanacos, llamas and vicunas. Camels play an important role in food security, nutrition and economic development. Camels provide strong cultural and social significance to various communities in the world. In particular, from providing milk, meat products and fiber to transporting organic fertilizers, camels are capable of living in places where other livestock species cannot.

Camels play an important role in advancing the Sustainable Development Goals (SDGs) related to the eradication of extreme poverty, the fight against hunger, the empowerment of women and the sustainable use of terrestrial ecosystems. Camels play an essential role in the culture, economy, food security and livelihoods of communities in arid and semi-arid lands, including indigenous peoples in Asia and Africa. There are nine registered dromedary camel species in India. In the challenging desert ecosystems of states like Rajasthan and Gujarat, camels are lifelines for communities like Raika/Rabari. The International Camel Festival in Bikaner, Pushkar Mela, Ran Utsav in Kutch and related arts showcase the enduring cultural heritage of camels. Camel-based tourism activities provide many economic benefits to people.

The International Year of Camelids 2024 provides a unique opportunity to raise awareness about the role of camels in combating climate change. The year also aims to call for investment in research, capacity building, and the use of innovative practices and technologies in sectors where camels contribute. Awareness workshops, training camps, exhibitions, seminars, publication of pamphlets, formulation of policy documents, marketing of camel food products and other resources can be implemented to celebrate International Year of Camelids. We are delighted to participate in this special awareness program through our research journal. Let's celebrate and protect camels, an animal that completely dedicates itself to the welfare of Human kind.

### **Editor, IJONS**

Cover page image: Camel in Desert / Credit: Denys Gromov & FAO