

INDIAN JOURNAL OF NATURAL SCIENCES (IJONS)
BIMONTHLY INTERNATIONAL JOURNAL

Editor-in-Chief
Dr.S.Vijikumar

Published by
TAMILNADU SCIENTIFIC RESEARCH ORGANISATION

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

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

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

Indian Journal of Natural Sciences (IJONS)

Editorial Committee Members (ECM)

Editor-in-Chief	Dr.S.Vijikumar Director TamilNadu Scientific Research Organisation Pudukkottai-622003, Tamil Nadu. India.
	Editorial Committee
Honorable Chief Advisor	Prof. Dr. V. Ramaiyan Marine Biologist Research Advisor Sri Venkateswara College of Arts & Science. Peravoorani, Thanjavur. Tamil Nadu. India.
Honorable Chief Advisor	Dr. B. Vaseeharan Professor and Head, Department of Animal Health and Management, Alagappa University, Karaikudi – 630003
Honorable Chief Advisor	Prof. Mahdi Vatan Parast Chancellor & Professor, Islamic Azad University, Quchan Branch, Quchan-Khorasan Razavi- Iran.
Honorable Chief Advisor	Prof. Dr. Hamid Saremi Vice- Chancellor, Islamic Azad University, Quchan branch, Quchan-Iran.
Honorable Chief Advisor	Dr. Sr.D. Victoriya Amalorpava Mary , FBS Principal, Bon Secours College for Women, Vilar bypass road, Thanjavur - 613 006. Tamilnadu, South India.
Honorable Chief Advisor	Prof. Dr. B.A. ASBI Vice President Research, Management & Science University (MSU), University drive off persiaran olahraga, 40100 shah alam selangor , MALAYSIA.
Honorable Member	Dr. N. Jayabalan Professor & Head, Dept. of plant Science, School of life Sciences Bharathidasan University, Tiruchirappalli. Tamil Nadu. India.
Honorable Member	Dr. T.S. Saravanan Professor of Biotechnology cum Research Co-ordinator Dr.M.G.R Educational and Research Institute University Periyar E.V.R High Road, Maduravoyal, Chennai-600095.
Honorable Member	Dr.S.P.Subramaniyan Asst. Controller of Patents and Designs (Govt. of India) Patent Office, IPR Building, GST Road, Guindy, Chennai 600032
Honorable Member	Er. Abdul Samad. M. Kamdod Assistant Professor, Department of Civil Engineering Bharat Institute of Science & Technology for Women Mangalpally, Renga Reddy Dist. Andhra Pradesh, India

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

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

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

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

Honorable Member	Dr.P.Govindaraj Head & Associate Professor in Chemistry Department of Chemistry SBK College, Aruppukottai - 626 101, TamilNadu, India
Honorable Member	Dr.M.Gopikannan Senior Research Fellow, 15-B3 Paramathi Main Road, S.P.Pudhur, Namakkal(Dt)-637 001, TamilNadu, India
Honorable Member	Dr.K.Samiayyan Dean Agricultural College and Research Institute, TNAU, Eachangkottai, Thanjavur-614902, T.N,India.
Honorable Member	Dr.M.Vasanthi Assistant professor Periyar Illam,(upstairs), No,4,Vayalur Road, Kumaran Nagar, Ramalinga nagar south Extension, Trichy-620017, Tamil Nadu, India
Honorable Member	Dr.N.Vijayakumar Assistant Professor Dept.of Biochemistry & Biotechnology Annamalai University, Annamalainagar-608 002, Tamilnadu, India.
Honorable Member	Dr. S. Umamaheswari Assistant Professor Department of Environmental Biotechnology School of Environmental Sciences Bharathidasan University Tiruchirappalli – 620 024, Tamil Nadu
Honorable Member	Dr. Jai Shanker Pillai H.P. H.D. Ponna swamy Pillai # 644, Ganesh Temple Street Hunsur taluk, Mysore district – 571105, Karnataka, India
Honorable Member	Mr. Nesarajan. J Assitant Professor, Department of Zoology, Bishop Heber College, Trichy-17, Tamil Nadu. India
Honorable Member	Dr. John Abraham Assistant Professor, Department of L.P.M.,College of Veterinary and Animal Sciences Pookode, Wayanad. 673576, Kerala.
Honorable Member	Dr. S. Jayachandran Professor &Head,Dept. of Oral Medicine and Radiology, Tamil Nadu Govt. Dental College and Hospital, Chennai -600003,Tamil Nadu,India.
Honorable Member	Dr.V.M. Srinivasan Assistant Professor (Plant Pathology) Department of Crop Protection Thanthai Roever Institute of Agriculture and Rural Development, Valikandapuram Post, Perambalur - 621115., Tamil Nadu.

Honorable Member	Dr.Ranjith.D Assistant Professor, Department of Veterinary Pharmacology and Toxicology, College of Veterinary and Animal Sciences, Pookode, Wayanad – 673576. Kerala,India
Honorable Member	Daniel Jebaraj,M. C/o Joshuah No.14A, Thendral Nagar New Thillai Nagar, Vadavalli, Coimbatore-641041,TamilNadu,India
Honorable Member	Dr.Sindhu. K Veterinary Officer Department of AH and VS Karnataka, India.
Honorable Member	Dr.Rajesh R Young Scientist, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore 641 003,TamilNadu,India.
Honorable Member	Dr.Jaivel N Post Doctoral Fellow, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Coimbatore - 641 003,TamilNadu,India.
Honorable Member	Dr.R.Prabhu Research Associate, NADP Cell,CARDS, TamilNadu Agricultural University, Coimbatore - 641 003,Tamil Nadu, India.
Honorable Member	Dr.M.Uma Gowri Research Associate, NADP Cell,CARDS, TamilNadu Agricultural University, Coimbatore - 641 003,Tamil Nadu, India.
Honorable Member	S.Jegan Karuppiiah Assistant Professor, Department of Rural Development Science, Arul Anandar College, Karmathur - 625 514, Madurai. Tamilnadu, India
Honorable Member	Dr. Rina Poonia Associate Professor, Department of Physical Education, Faculty of Arts & Law, Manipal University, Jaipur, India.
Honorable Member	Dr.S.Ezhil Vendan Scientist Fellow, Food Protectants & Infestation Control Department, CSIR-Central Food Technological Research Institute, Mysore-570 020,Karnataka,India.

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

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

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

Honorable Member	Dr. Syed Abrar Research Associate, Department of P.G. Studies & Research in Applied Botany, Kuvempu University,Shivamogga, Karnataka,India.
Honorable Member	Dr.V.Violet Dhayabaran Associate Professor ,Department of Chemistry, Bishop Heber College (Autonomous), Puthur, Tiruchirappalli,TamilNadu,India.
Honorable Member	Dr.H.T.Raghavendra Gowda Haluvalli, Opposite Bus stand, Mallalur,Chikamagalore, Karnataka,India.
Honorable Member	Dr. Goverdhan Rathla K. S Assistant Professor,Department of Physics, Government First Grade College, Birur, Kadur Talluk,Chickmagalore District. Karnataka,India.
Honorable Member	Dr.Ananthnag B Lecturer, Department of Environmental Science, Kuvempu University,Shivamogga, Karnataka,India.
Honorable Member	Dr.M.Ramesh Associate Professor, Department of Biotechnology,Alagappa University, Karaikudi-630003,Sivagangai Dt, TamilNadu,India.
Honorable Member	Dr.S.Yamini Sudha Lakshmi Assistant Professor, Department of Medical Biochemistry, University of Madras,Taramani Campus, Chennai-600113,TamilNadu,India.
Honorable Member	Dr. SA. Ramyabharathi 253/ A37, TNHB Colony, Kollapatti, Animur (PO),Tiruchengode (TK), Namakkal District- 637214, TamilNadu,India.
Honorable Member	Dr.B.Kaleeswaran Assistant Professor, Dept. of Zoology & Biotechnology, A.V.V.M.Sri Pushpam College, Poondi, Thanjavur, T.N.India.
Honorable Member	Dr.A.Radha Assistant Professor,Dept. of Zoology Kunthavai Naacchiyar Govt Arts College for Women, Thanjavur-7,T.N.India.

Honorable Member	Dr.V.L.Madhu Prasad Directorate of Extension, University of Agricultural Science, Hebbal,Bangaluru-560024. Karnataka,India.
Honorable Member	Dr.T.Shanmugasundaram Research Associate, Department of Vegetable Crops, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore-641 003 Tamil Nadu,India.
Honorable Member	Dr.V.Sakthirama 3/8,P Block,Sree Dakshaa-Vhiridhaa Bharthiyar University Post,Coimbatore-641046 TamilNadu,India.
Honorable Member	Dr.M.Kiruba 261B/5 Anna Nagar, Kulithalai-639104, Karur(Dt), Tamil Nadu
Honorable Member	Dr.Karpagavalli B Assistant Professor (FSN), RVS Agricultural College, Usilampatti Village,Sengipatti Via, Thanjavur-613402,Tamil Nadu,India.
Honorable Member	Dr.D.Leninraja, Assistant Professor (Soil Science & Agricultural Chemistry) Agricultural College and Research Institute, Tamil Nadu Agricultural University, Kudumiyamalai,Pudukottai- 622 104,T.N
Honorable Member	Dr.S.Maragatham, Associate Professor (Soil Science & Agricultural Chemistry) Agricultural College and Research Institute, Tamil Nadu Agricultural University, Kudumiyamalai,Pudukottai- 622 104,T.N.
Honorable Member	Dr.D.Balamurugan Assistant Professor (Soil Science & Agricultural Chemistry) JKK Munirajah College of Agricultural Science, T. N. Palayam, Erode- 638 506,T.N
Honorable Member	Dr.N.Rajesh Nallaiah Assistant Professor (Agronomy) RVS Agricultural College, Usilampatti Village,Sengipatti via, Thanjavur-613402,Tamil Nadu,India.
Honorable Member	Dr.C.N.Hari Prasath Senior Research Fellow D3 Quarters, Forest College and Research Institute, Kothagiri Road, Mettupalayam (TK), Coimbatore (Dt),Tamil Nadu – 641 301,India.

Honorable Member	Dr.Prantosh K. Paul Department of Computer & Information Science, Raiganj University, Raiganj, West Bengal-733 134, India.
Honorable Member	Dr. Ajay Anil Gurjar Professor & Dean Academics, Sipna College of Engineering & Technology, Amravati(M.S)- 444606,India.
Honorable Member	Dr.Mathews Plamoottil Asst. Professor in Zoology, Govt. College Chavara, Kollam, Kerala,India.
Honorable Member	Dr.Mrs.E.Emimal Victoria Assistant Professor, Department of Zoology Sri Meenakshi Govt. Arts College for Women, Madurai TamilNadu,India
Honorable Member	Dr.C.Kandeepan Asst.Professor and Head, PG Department of Zoology, A.P.A College of Arts and Culture, Palani-624601,Dindigul Dt.T.N.,India.
Honorable Member	Dr.V.E.Nethaji Mariappan Scientist"F" Centre for Remote Sensing and Geoinformatics Sathyabama University,Rajiv Gandhi Road, Sholinganallur,Chennai – 600119,Tamil Nadu
Honorable Member	Dr.K.Nagarajan Associate Professor, Department of Zoology VHN Senthikumara Nadar College, Virudhunagar,TamilNadu,India.
Honorable Member	Dr.D.Sivaraman Scientist-C Department of Pharmacology, Sathyabama University, Jeppiaar Nagar, Rajiv Gandhi road, Chennai- 600 119.
Honorable Member	Dr.N.Mahesh Assistant Professor – III Department of Chemistry & Biosciences SASTRA University Srinivasa Ramanujan Centre, Kumbakonam,Thanjavur Dist,Tamilnadu,INDIA
Honorable Member	Dr.Sumit Kumar Gupta Dean of Science, Department of Physics, Parishkar College of Global Excellence , Jaipur, Rajasthan,India

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

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

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

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

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

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

Honorable Member	Dr. Intedhar Abbas Marhoon Biology Department, Faculty of Science, University of Al-Qadisiyah, Iraq
Honorable Member	Dr.Omkar Prasad Baidya Assistant Professor, Department of Physiology, ESI-PGIMSR and ESIC Medical College, Joka, Kolkata, West Bengal, India
Honorable Member	Dr.Reem Zuhair Shaker Abdul Rahman Shanshal Assistant Professor in Life Sciences, College of Education for Girls, University of Mosul, Iraq.

Idian Journal of Natural Sciences (IJONS)

Volume IX (9) CODEN: IJONS (52) (2019)		Issue 52	February 2019 ISSN: 0976 - 0997
S. No.	CONTENTS	Page No.	
	Editorial		
01	Efficacy Analysis of <i>Candida antarctica</i> and <i>Rhizomucor miehei</i> Regrading Biodiesel Production from Bioresources S.Nandi, R. Bhattacharyya and G. Misra	16201-16207	
02	Spectroscopic Evaluation and Calibration Technique for Different Fiber Optic Sensors Shehab A. Kadhim, Nibras K.Juberand Firdous Sh. Ahmed	16208-16215	
03	Investigation of Bacterial and Parasitological Contamination in Buffalo's Milk Cream (Arab Cream) in Alsamawa City, Iraq Mohenned A. Alsaadawi, Haider S. Almnehlawi and Ali M. Al-yasari	16216-16221	
04	Investigation the Effect of Annealing on the Optical Properties of CdS Thin Films by Spin Coating Deposition (SCD) Ghaith H. Jihad and Hamed M. Ameen	16222-16228	
05	Study the Optical and Structural Properties of (ZnO: Pb) thin Films Prepared by Laser Induced Plasma Technique Ghaith H. Jihad	16229-16235	
06	Utilizing Remote Sensing Techniques to Extract the Geological Lineaments in AL-Najaf Plateau Alaa Hassan Harif and Laith A. Jawad	16236-16246	
07	Effect of the Oxygen / Argon Mixture on the Parameters of the plasma Glow Discharge Prepared by DC Magnetron Sputtering Muhammed.Sh.Muhammed, Mohammed.K. Khalaf and Sabri. J. Mohammed	16247-16254	
08	Cooperation of Sonicated <i>Corynebacterium pseudotuberculosis</i> and <i>Pseudomonas aeruginosa</i> Antigens for Enhancement Cellular Immune Response in Rabbits Ikram Abbas About Al-Samarraae	16255-16262	
09	Evaluation of Groundwater Quality in AL-Hilla District by Comparing of Two Deterministic Interpolation Methods in GIS Kadhim Naief Kadhim and Noor Sabah Abbas	16263-16269	
10	The First Speckled Pigeon <i>Columba guinea</i> (Aves, <i>Columbidae</i>) in Iraq Mudhafar A. Salim, Salwan Ali Abed, and Wameedh S. Yassir	16270-16273	
11	Three Topological Structures of Fuzzy Bitopological Spaces Amer Himza Almyaly	16274-16280	
12	Co-doping Effect (Pb and Nd) on Mechanical Properties of BSCCO System Firas Salim Abed and Amal K.Jassim	16281-16286	
13	The Installation of Three Meter Small Radio Telescope in University of Baghdad Mohammed R. Hoobi and Kamal M. Abood	16287-16295	
14	Spectral Investigations for the Explanation the Nature of Interstellar Matter Haydar Al-baqir	16296-16299	
15	Utilizing Air-Gap of the Mach-Zehnder Interferometer as Acetone Vapor Sensor Dhuha Nihad Issa and Hanan J. Taher	16300-16304	

16	Economic Efficiency of Dietary Supplementation of Rumen Bypass Fat in Crossbred Cows Ani S. Das, Metilda Joseph, Shibu Simon, Shyama K, Manoj M, and Muhammad Aslam M.K	16305-16308
17	Deployment of OSPFv3 and IPv6 on Simulated and Geographically Separated Sites Mohammed Aldagdoog, Sadeq Hilal Alzaghir and Raheeq Abd Mohammed AlKhafaji	16309-16322
18	Comparison of Body Weight Estimated using Body Measurements with Live Weight of Crossbred Cattle S.K. George, M.T. Dipu, Muhammad Aslam M K and Lalu K	16323-16325
19	Electron Scattering with Sigma Meson Exchange Particle as a Residual Interaction to Calculate C2 Form Factors in ⁴⁴ Ca Nucleus Sadeq S. Mashaan and Firas Z. Majeed	16326-16335
20	Effects of Gamma Rays Irradiation on the Optical Properties of Mn Doped NiO Thin Films, Obtained by Co-Precipitation Method Ahmed Nsaif Jasim, Asaad Ahmed Kamel, Zainab Saad Mahdi, Zaid Abdel Hadi Abd and Sorina Iftimie	16336-16341
21	Effect of Heavy Metal Residues in Breast Milk: Intelligent Modeling Tedjar L, Bouharati S, Allag F and Bounechada M	16342-16347
22	Toxic Pathological Changes on Albino Mice after Exposures to Cypermethrin Salema Lafta Hassan	16348-16354
23	Petrography Study of the Euphrates Formation (Early Miocene) in Muthanna Area, Southern Desert, Iraq Saleh A. Lazam	16355-16368
24	Observation of Interaction of the ICME with Earth Bow Shock and Related Effects on Earth Rabab Mazhir Jassim and Amjad Al-Sawad	16369-16377
25	Study (I-V) Characteristics and Panchen Curve of the Plasma Glow Discharge with Different Inter Electrodes Spacing Mohammed.K. Khalaf, Muhammed.Sh.Muhammed, Sabri. J. Mohammed and Thair.Kh.Salih	16378-16383
26	Design and Test of Electrochemistry of Electrodes Catalysis for an Alkaline Fuel Cell Haleemah J. Mohammed and Nathera .A. Ali	16384-16390
27	The Optical Spectroscopy uses for Different Elements T.A Ali Al-dulaimi, Areeg Al-hamadani, Mohammed Al-Gherairy , Rafid Al-Zuhairi, Amar Al- timimi and Waleed Alewee	16391-16400
28	Importance of Transition Cow Management in Kerala K Lalu N P Sakkariya, M. T Dipu and S K George	16401-16405
29	Geometric Investigation of Satellite Pushbroom Image Ray for Spot Satellite Image of Musol City and Suranded Area Israa Hussein and Nawal K.Ghazal	16406-16416
30	Radiological Assessment of Hazard Index for Clay Sample in Iraq Akram M. Ali and Iman E. Turki	16417-16424
31	Socio-Economic Impacts of Afghan Refugees on the Indigenous Population of Balochistan Muhammad Yaseen and Kaneez Fatima	16425-16433

32	Preparation and Study of Some Optical Properties for [PVA:PVP] Polymer Blends Films Ali A. Sallal, Sabah A. Salman and Ammar A. Habeeb	16434-16441
33	Assessment of Sediment Transport in Hilla - Diwaniya Project Zainab Ali Omran, Zahra Abd Saleh, and Nariman Yahya Othman	16442-16451
34	Enhancement Characteristics Clay Soil by using Demolition Waste Abeer Abduljabbar Al-saeedi and Ahmed. T. Al-Janabi	16452-16457
35	Histomorphology and Histochemical Study of Esophagus and Stomach in Grey Mongoose (<i>Herpestes edwardsii</i>) In Iraq Hussein Bashar Mahmood and Khalid.K.Kadhim	16458-16475
36	CME Analysis Using cmeDetect Code Zeinab F.Hussein	16476-16480
37	Experimental Hypo-Magnesium Induced in Awassi Lambs Using Potassium Chloride Ali Mohammed Aboud and Wasan A. Gharbi	16481-16487
38	A Study on the Effect of Very Fast Halo CME on Behind Shock Wave in the MESEP Events Dhuha Riyadh Majeed and Amjad Al-Sawad	16488-16500
39	Effect of Polychromatic Light on Image Performance of Human Eye with Polythiourethane Contact Lens Ali H. Al-Hamdani and Halah A.Hashim	16501-16507
40	Histopathological Study of Some Knee Tissues and Correlation between Serum and Synovial Fluid in Rheumatoid Arthritis of Iraqi Patients Ola A. Jassim, Sahar A. H. Al-Sharqi, Mahmood Shihab Wahab and Sammir Rasmay Almousawi	16508-16522
41	Guess Solar Radiation Energy on Iraq by using DEMS and ArcGIS Techniques Ayatf. Abed* and Ebtessam F.Khanjer	16523-16528
42	Molecular Comparison of Adhesins of Uropathogenic <i>Escherichia coli</i> Isolates from Patients with First Episode and Recurrent Urinary Tract Infections Zainab Ali Bachai and Sareaa Maseer Gatyia Al-Mayahie	16529-16535
43	The Nanocomposite Film of Polypyrrole and Functionalized Single Walled Carbon Nanotubes as Gas Sensor of NO ₂ Oxidizing Gas Ghada Ayad Kadhim and Mahdi Hasan Suhail	16536-16543
44	Morphological and Morphometrical Characteristics of Lacrimal Apparatus in Adult Iraqi Local Breed Goat (<i>Caprus hircus</i>) Nabeel Abd Murad AL-Mamoori and Mahdi Abdul-Kareem Atyia	16544-16553
45	Physiological Study in <i>Giardia lamblia</i> Infected Mice after Oral Supplement with <i>Cladophora glomerata</i> Extract Shatha Khudhaier Abbas, Ghaidaa Husain Abd – Ali and Firas Salih Abd-Ulhadi	16554-16559
46	Comparative Histomorphological and Histochemical Study of Thyroid Gland in Adult Males of Guinea Pigs (<i>Cavia porcellus</i>) and Albino Rats (<i>Rattus norvegicus</i>) Abbas. L. Batah and Shakir. M. Mirhish	16560-16569
47	Influence of γ Al ₂ O ₃ Nanoparticles Addition and Pressure on the Electrical, Structural and Microstructure Properties of Bi-2223 Superconducting System Bushra A. Aljurani, Ghazala Y.Hermiz and Khalid A. Shyaa	16570-16577

48	Fast Search Method by Block Categorization and Multi Codebook Designing Based on Block Edge Maha A. Hameed	16578-16582
49	Stomatal Characteristics in <i>Phalaenopsis</i> Orchids Kaveriamma M M, P.K. Rajeevan ² and Nandhini. K	16583-16586
50	Clinico-Pathological Study of Rabbits Experimentally Infected with <i>S. enterica</i> . Serovar <i>S.enteritidis</i> Isolated from Human Ayat J.Mohammed and Khalid M Hammadi	16587-16595
51	The Derived Air Concentration and Annual Limit of Intake of Airborne Particulate Sampling for Selected Places at Al-Tuwaitha Nuclear Site During Winter-Spring and Summer-Autumn Seasons Altaf Abdulmajeed Al-Rahmani, Yousif Muhsin Zayir AL-Bakhat, Naheel Abbas Mohammed Salih, Fadhil H. Mizban and Faeq A. Mohammed	16596-16607
52	Effect of Gamma Irradiation on Physical Properties of (NiO) Electrochromic Thin Film Mayada Kaream Hassan, Buthainah Abdulmunem Ibrahim and Ziad T. Khodair	16608-16613
53	A Critical Discourse Analysis of Positive-Self and Negative - Other Representations through English Language Textbooks Muhammad Kamran Abbas Ismail, Muhammad Ahmad, Nosheen Akhter and Hafiz Muhammad Adeel	16614-16625
54	Ameliorating Effects of <i>Morus alba</i> Leaves Extract on Nephrotoxicity -Induced by Gentamicin in Male Rats Mojtaba I. Hashim and Salma J. Askar	16626-16637
55	Developing Materials and Activities for an ESP Physical Therapy Course Wasim Hassan and Mamuna Ghani	16638-16650
56	Study of Some Thermal Properties of [PVA:PVP] Polymer Blends Films and the Feasibility of a Biotic Application on the (PVA-PVP-Ag) Nano Polymer Composite Solution Sabah A. Salman, Ammar A. Habeeb and Ali A. Sallal	16651-16658
57	Peak Calling Algorithms and Their Applications for Next-Generation Sequencing Technologies Hamdan A. Taleb, Aisha AL-Dherasi, Sultan Al-Mosaib, Mohammed Alnoud and Vilaphong Souksavanh	16659-16670
58	Accurate Diagnosis of Pathogenic Parasites Based on Modern Techniques Khadeeja Abees Hmood Al-khalidy	16671-16674
59	Identification of <i>iha</i> and <i>kpsMT</i> Virulence Genes in <i>Escherichia coli</i> Isolates with Urinary Tract Infection in Iraqi Patients Rana Kadhim Mohammed and Ali Attallah Ibrahim	16675-16682
60	Hardness and Impact Strength of Functionally Graded Nanocomposites Ali A. Abbas and Zainab R. Muslim	16683-16688
61	Efficiency Boosting by using Dissimilar Cations Mixture in Polymer Electrolyte Mustafa Kadhum Abid, Mohammed Kadhim Jawad and Mustafa Sami Al-Salmani	16689-16698
62	The Numerical and Experimental Work of Chaos System in Three Dimensions Phase Space using Rossler Circuit Dina A.Kafi, Raied K. Jamal , Kajeen I. Mosa and Kais A. Alnaemme	16699-16710

63	Surface Photometry and Morphology Properties of Spiral Galaxies: NGC4725, NGC4639 as Case Study Huda Hardan and Abdullah. K. Ahmed	16711-16722
64	Topical Effects of Metformin on Induced Ocular Hypertension in Rabbits Ali H. Jasim, Haitham M. Kadim and Ahmed Majeed Rasheed	16723-16734
65	Molecular Identification of Non-O157 Shiga Toxin-Producing <i>Escherichia coli</i> Isolated From Iraqi Patients Sahar Kathem Khalaf Al-Qaisi, Nadirasalman Mohamed and Ibrahim Abdul Hussain Al-Zubaidy	16735-16739
66	Chaotic Dynamics of the Nuclear Energy Spectrum in ¹³⁸ Ba Nucleus Adel. K. Hamoudi and Shatha F. Murad	16740-16751
67	Using Exponential Weighted Moving Average EWMA Chart in Mixed Model ARMA Halal Fadhil Hussein	16752-16767
68	Calculating the Time and Cost of Completing a Construction Project using PERT Network Optimization Hamza Barakat Habib, Wadhah Abdullellah Hussein and Ali Al-dulaimi	16768-16774
69	Flexural Properties of Functionally Graded Nanocomposites Ali A. Abbas and Zainab R. Muslim	16775-16783
70	Characterization of Al - Doped CdO Thin Films Prepared by Pulsed Laser Deposition Technique Omar Sh. Shafeeq	16784-16789
71	Immune Thrombocytopenia Purpura, Experience of Single Institute, Wasit, Iraq Safa A. Faraj and Hasanein H. Ghali	16790-16795
72	Investigation the Role of HOXB13 in Benign and Malignancy Prostatic Cancer Patients Using IHC Technique Asyad Abdul-Abbas Hussein, Kareem Hamed Ghali, Mahdi Saber Al-Deresawi and HameedNaeem Mousa	16796-16803
73	Crude Oil Characterization and Affinity of Ahdab, East Baghdad and Badra Oil Fields, Eastern and Central Iraq Ali Kh. Al-Temimi	16804-16823
74	Studying the Effect of Microwaves Plasma on the Properties of Nano-Curcumin by Texture Analysis Neean F. Majeed, Alyaa H. Ali and Sabah N. Mazhir	16824-16835
75	Using Epoxy-Phenol Formaldehyde Hybrid Blend as an Alternative to the Materials Used in the Manufacture of the Oil Pan in the Vehicle's Internal Combustion Engine Maher N. Abdullah, Sabah A. Salman and Mustafa A. Rajab	16836-16841
76	A Corpus-Based Analysis of EFL Learners' Errors in Written Composition at Intermediate Level Muhammad Mushtaq, Muhammad Asim Mahmood, Muhammad Kamran Abbas Ismail, Muhammad Ahmad and Hafiz Muhammad Adeel	16842-16852
77	Effect of Cold Plasma on the Fracture and Osteoporosis in Long Bone Rabbits using Textural Analysis Alyaa H. Ali, Atheer Q Muryoush, Sabah N. Mazhir and HazimAl-Ahmed	16853-16861
78	The Histopathological Effect of Rotavirus in Small Intestine of Mice Isolated from Wasit Province Atheer Abdulrazzaq Abdulazeez and Modher Nagem Abed	16862-16867

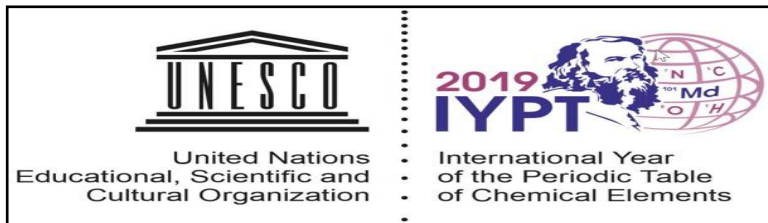
79	Seepage and Stability of Zoned Earth Dam during Rapid Drawdown of Water in Reservoir Abdul-Hassan K. Al-Shukur and RanyaBadea' Mahmoud	16868-16877
80	Effect of Vermicompost on the Growth and Yield of Brinjal (<i>Solanum melongena</i> L.) K.Sundararasu	16878-16889

Editorial Notes.....

INTERNATIONAL YEAR OF THE PERIODIC TABLE OF CHEMICAL ELEMENTS (IYPT2019)

The Periodic Table of Chemical Elements is one of the most significant achievements in science, capturing the essence not only of chemistry, but also of physics and biology. 1869 is

considered as the year of discovery of the Periodic System by Dmitri Mendeleev. 2019 will be the 150th anniversary of the Periodic Table of Chemical Elements and has therefore been proclaimed the "International Year of the Periodic Table of Chemical Elements (IYPT2019)" by the United Nations General Assembly and UNESCO.



*It is a unique tool, enabling scientist to predict the appearance and properties of matter on the Earth and in the rest of the Universe. The initiative for IYPT2019 is supported by IUPAC in partnership with the International Union of Pure and Applied Physics (IUPAP), European Association for Chemical and Molecular Science (EuCheMS), the International Council for Science (ICSU), International Astronomical Union (IAU), and the International Union of History and Philosophy of Science and Technology (IUHPS). All around the globe celebrations will take place in 2019. IUPAC IS hosting **an online quiz about the Periodic Table of the Elements**. The online challenge will be aimed at a global audience of young students. Questions about the elements will quiz their knowledge and inform them of the relevant work of IUPAC.*

*The global challenge will be launched in January 2019 and is available all year until the end of 2019. Furthermore, in celebration of the 100th anniversary of IUPAC and the International Year of the Periodic Table, IUPAC and IYCN announce the creation of a **Periodic Table of Younger Chemists**. They will honor a diverse group of 118 outstanding younger chemists from around the world who in embody the mission and core values of IUPAC. IJONS also involve promoting and propagate the importance of IYPT to the students and common people by awareness and training.*

S.Vijikumar
Editor in Chief
IJONS