Volume 106 Number 1

10 January 2014

Nanocrystalline silica from termite mounds

Cost of siltation in Sardar Sarovar reservoir

Culturable bacterial diversity from shallow vent of Azores

Current Science Association | Indian Academy of Sciences

Volume 106 Number 1

10 January 2014

6 In this issue

GUEST EDITORIAL

Linear, no threshold model in low-dose radiobiology: ideology versus science P. C. Kesavan

CORRESPONDENCE

Pop pills at will: implications of self-medication, Mamta Mishra, Rahul Shrivastava and Sudhir Kumar 9 Two Freds' no more: the legacies of two scientists, Prashanth Suravajhala ■ 10 Impact factor-driven taxonomy: deterrent to Indian taxonomists?, P. R. Shashank and Naresh M. Meshram 10 United Nations International Year of Water Cooperation-2013, P. Naik ■ 11 The translocated Kurdi Angod sacred site - a conservatory of RET plants of the Western Ghats, R. Kr. Singh and Arti Garg 12 Gregarious flowering in woody bamboos: does it mean end of life?, Arun Jyoti Nath, Mukta Chandra Das and Ashesh Kumar Das

NEWS

Using nanotechnology to control pests: trapping fruit fly using pheromone gels, Ipsita 14 Herlekar ■ 15 A step towards prevention of food losses, C. K. Narayana

RESEARCH NEWS

Imaging of organic and biological materials by in-focus transmission electron microscopy, 17 Ujjal Kumar Sur

COMMENTARY

Journal articles, P. Gopala Sarma 21 Science, Technology and Innovation Policy 2013 20 of India and informal sector innovations, Fayaz Ahmad Sheikh

OPINION

Sustainability science in India, Y. S. C. Khuman, Subhakanta Mohapatra, S. K. Yadav and 24 M. K. Salooja

SCIENTIFIC CORRESPONDENCE

Proterozoic felsic volcanics in Alwar Basin of North Delhi Fold Belt, Rajasthan: implication 27 for copper mineralization, Israil Khan, Prabodha Ranjan Sahoo and Dinesh Kumar Rai 29 Bioelectricity generation by proton exchange membrane-based microbial fuel cell from sewage substrate, Arti Yadav, Dimpal Parida, A. Muralidharan and M. Ramya

GENERAL ARTICLES

Energy in India and the world: 2012-13 31 B. G. Desai

Cost of siltation in Sardar Sarovar reservoir: implications for catchment treatment 35 V. C. Pande, R. S. Kurothe, D. R. Sena and Gopal Kumar

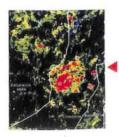
RESEARCH ARTICLES

- An image processing approach for converging ASTER-derived spectral maps for mapping 40 Arindam Guha, K. Vinod Kumar, E. N. Dhananjaya Rao and Reshma Parveen
- Strength improvement studies using new type wild strain Bacillus cereus on cement mortar 50 S. Maheswaran, S. S. Dasuru, A. Rama Chandra Murthy, B. Bhuvaneshwari, V. Ramesh Kumar, G. S. Palani, Nagesh R. Iyer, Sarayu Krishnamoorthy and S. Sandhya













Culturable bacterial phylogeny from a shallow water hydrothermal vent of Espalamaca (Faial, Azores) reveals a variety of novel taxa

Raju Rajasabapathy, Chellandi Mohandass, Ana Colaco, Syed Gulam Dastager, Ricardo Serrao Santos and Ram Murti Meena

RESEARCH COMMUNICATIONS

- 70 All states stand to save electricity were Indian Standard Time to be advanced D. P. SenGupta, Ila Gupta and Dilip R. Ahuja
- 75 Hyper-variable spontaneous genetic variation for earliness, seed characters and other yield-contributing traits in lentil (Lens culinaris Med.)
 Sumer Singh Punia, Baldev Ram, Meenakshi Dheer, Narendra Kumar Jain, Nanag Ram Koli and Om Prakash Khedar
- 83 Nanocrystalline silica from termite mounds Ashok K. Ganguli, Sandeep Kumar, Arabinda Baruah and Sonalika Vaidya
- Characteristic ULF band magnetic field variations at MPGO, Ghuttu for the 20 June 2011 earthquake in Garhwal Himalaya
 Gautam Rawat
- 93 Large capacity reaction floor-wall assembly for pseudo-dynamic testing at IIT Kanpur and its load rating
 Durgesh C. Rai, Sudhir K. Jain, C. V. R. Murty and Dipanshu Bansal

BOOK REVIEWS

Fundamentals of Picoscience, Klaus D. Sattler (ed.) reviewed by H. S. Virk ■ 102
Correlated Electrons in Quantum Matter by Peter Fulde reviewed by Vijay B. Shenoy ■ 103
A Textbook of Nanoscience and Nanotechnology, T. Pradeep et al. reviewed by Karuna Kar
Nanda ■ 104 Evergreen Revolution in Agriculture: Pathway to a Green Economy by
P. C. Kesavan and M. S. Swaminathan reviewed by P. K. Gupta

LIVING LEGENDS IN INDIAN SCIENCE

106 Asoke Nath Mitra, N. Panchapakesan



■ COVER. Shallow water hydrothermal vent of Espalamaca (Azores) showing the bubbles coming out from the crevices. (Photo: J. Fontes © ImagDOP/UAz). See page 58.

 $\label{localized} Indexed\ in\ CURRENT\ CONTENTS/GEOBASE/CHEMICAL\ ABSTRACTS/IndMED/SCOPUS/\ WEB\ OF\ SCIENCE$



Volume 106 Number 2

25 January 2014

137	In	this	issue

GUEST EDITORIAL

139 Inverting the pyramid of scientific hierarchy
Kartik Shanker

CORRESPONDENCE

Tourism, tribes and tribulations in Andaman Islands, Govindasamy Agoramoorthy and Chandrakasan Sivaperuman ■ 142 Science, society and media: some perspectives, Udayan Singh ■ 142 Participatory water management, P. Naik ■ 143 Food colourants and health issues: are we aware?, R. Siva ■ 144 Time to take a closer look at school-level science teaching, Bhupati Chakrabarti

NEWS

Seventy-ninth annual meeting of the Indian Academy of Sciences, Ipsita Herlekar and Megha
Prakash ■ 148 Thermophiles-2013, T. Satyanarayana

OPINION

150 Peer-reviewed, high-quality research publications from Indian academia Jayarama D. Bhat and V. Venkateswara Sarma

COMMENTARY

152 Endosulfan issue: science verses conscience, G. K. Mahapatro and Madhumita Panigrahi

SCIENTIFIC CORRESPONDENCE

Piezometric water-level conditions in Bangalore city, Karnataka, India, G. V. Hegde and K. C. Subhash Chandra ■ 159 Anomalous silver concentration in volcano-plutonic rocks of Siwana Ring Complex, Barmer district, Western Rajasthan, Rajeev Bidwai, S. Srinivasan, L. K. Nanda, Atanu Banerjee, P. N. Bangroo, A. K. Rai and P. S. Parihar ■ 162 Occurrence of rare earth elements in parts of Nongpoh granite, Ri-Bhoi district, Meghalaya, Mohd. Sadiq, Ravi Kumar Umrao and J. C. Dutta

GENERAL ARTICLES

- Scientometric facts on international collaborative Indian publications
 E. R. Prakasan, Lalit Mohan, Priya Girap, Ganesh Surwase, B. S. Kademani and K. Bhanumurthy
- 170 Composite index for measuring sustainability of food systems in Punjab Abdul Nasir, M. S. Toor and Kamal Vatta

SPECIAL SECTION: SCIENCE OF THE HIMALAYA

- 176 Intricacies of the Himalayan seismotectonics and seismogenesis: need for integrated research O. P. Mishra
- 188 Seismotectonics of the great and large earthquakes in Himalaya J. R. Kayal
- 198 Seismotectonic implications of strike-slip earthquakes in the Darjiling-Sikkim Himalaya Malay Mukul, Sridevi Jade, Kutubuddin Ansari and Abdul Matin
- Active tectonics in the northwestern outer Himalaya: evidence of large-magnitude palaeoearthquakes in Pinjaur Dun and the Frontal Himalaya G. Philip, N. Suresh and S. S. Bhakuni
- Palaeogeographic significance of 'Yasin-type' rudist and orbitolinid fauna of the Shyok Suture Zone, Saltoro Hills, northern Ladakh, India Rajeev Upadhyay







- 229 Active fault study along foothill zone of Kumaun Sub-Himalaya: influence on landscape shaping and drainage evolution
 Javed N. Malik, Afroz A. Shah, Sambit P. Naik, Santiswarup Sahoo, Koji Okumura and Nihar R. Patra
- 237 Observed changes in Himalayan glaciers Anil V. Kulkarni and Yogesh Karyakarte
- 245 Climate footprints in the Late Quaternary-Holocene landforms of Dun Valley, NW Himalaya, India
 Anand K. Pandey, Prabha Pandey, Guru Dayal Singh and Navin Juval
- 254 When did India-Asia collide and make the Himalaya?
 A. K. Jain

RESEARCH ARTICLES

- 267 Lectin conjugated gastro-retentive microspheres of amoxicillin for effective treatment of Helicobacter pylori
 Sunil K. Jain, Mukesh Gupta, Ashok K. Sahoo, Aditya N. Pandey and Akhlesh K. Jain
- 277 Plant species diversity in unmanaged moist deciduous forest of Northern India Mukesh K. Gautam, Rajesh K. Manhas and Ashutosh K. Tripathi

RESEARCH COMMUNICATIONS

- What makes India such a good indenter?
 Hari B. Srivastava and P. R. Cobbold
- 293 Transforming to hydrological modelling approach for long-term water resources assessment under climate change scenario a case study of the Godavari Basin, India K. H. V. Durga Rao, V. Venkateshwar Rao, V. K. Dadhwal, J. R. Sharma and R. Jyothsna
- 300 Screening of soil for assessment of toxicity of heavy metals to organisms J. K. Saha and N. Panwar

LIVING LEGENDS IN INDIAN SCIENCE

305 A doyen of Indian botanists: H. Y. Mohan Ram Ramesh Maheshwari, K. R. Shivanna, R. Dore Swamy, K. Sankara Rao and Gita Mathur

BOOK REVIEWS

M.S. Swaminathan in Conversation by Nitya Rao reviewed by M. H. Mehta ■ 311

Discovering the Human Connectome by Olaf Sporns reviewed by Supratim Ray
■ 312 Himalaya: Mountains of Life by Kamal Bawa and Sandesh Kadur reviewed by

Jahnavi Joshi, Rohit Naniwadekar and Krushnamegh Kunte ■ 313 Kumudavathy River

Rejuvenation Project by Y. Lingaraju, Sri Janardhan and Sri Abhilash reviewed by Subhajyoti

Das

HISTORICAL NOTES

315 Swami Vivekananda's interaction with scientists and his appreciation of them: celebrating his 150th birth anniversary, B. N. Dwivedi

ACADEMY NEWS

318 Indian Academy of Sciences elects new Fellows - 2014



◆ COVER. Location of glaciers and amount of retreat between 1960 and 2000. See page 237.



Volume 106 Number 3

Ja. "11 1".

338

In this issue

GUEST EDITORIAL

10 February 2014

1 - 1	339	Warming causes cooling! The recent cold event over North America Ravi S. Nanjundiah
		CORRESPONDENCE
	341	Organized plant health clinics in Asia, M. P. Srivastava 342 Budget cut threatens Indian science, Ritu Trivedi 342 Building research centres of distinction for action, Vedpal Singh Malik 343 Massive phosphorus accumulation in soils: Kerala's continuing conundrum, R. Dinesh, V. Srinivasan, S. Hamza and M. Anandaraj
		NEWS
	345	Plastic degrading marine bacteria discovered, Ipsita Herlekar 345 The resistance gene in malaria parasite identified, Ipsita Herlekar 346 Indian Himalayan capacity and Mayank Shekhar, Pratima Pandey, Anshuman Bhardwaj and Shaktiman Singh
	·	RESEARCH NEWS
	347	ALMA confirms dust in supernova 1987 A, Prateek Sharma
	4	OPINION
	349	Pursuing knowledge creation, India needs a policy on 'plagiarism cells', P. Chaddah 350 Abbilash



The unseen impact of nanoparticles: more or less?, Mansi Bakshi, H. B. Singh and P. C. COMMENTARY

Current practices of commercial scientific publishers and their implications for the 353 scientific ethos, Ram K. Varma 358 Environmentally sound management of

SCIENTIFIC CORRESPONDENCE

- Cyclone Phailin enhanced the productivity following its passage: evidence from satellite 360 data, Aneesh A. Lotliker, T. Srinivasa Kumar, Venkat Shesu Reddem and Shailesh Nayak Solar photovoltaic-powered ventilation and cooling system of a greenhouse, P. K. Sharma and D. V. K. Samuel 364 Petrographic and XRD studies on a new occurrence of molybdenite within late Archaean mafic enclaves near Hyderabad, eastern Dharwar
- Erratum: Anomalous silver concentration in volcano-plutonic rocks of Siwana Ring 367 Rajeev Bidwai, S. Srinivasan, L. K. Nanda, Atanu Banerjee, P. N. Bangroo, A. K. Rai and P. S.

- The rise towards excellence of social science in India: a 'Nobel' confirmation of the value of 368 Ion Pohoață, Ionel Bostan and Radu Constantinescu The myth of frugal innovation in India
- 374 Gangan Prathap

RESEARCH ARTICLES



378 Comparison between LTTD and RO process of sea-water desalination: an integrated economic, environmental and ecological framework
R. Venkatesan

The Talya Conglomerate: an Archean (~2.7 Ga) Glaciomarine Formation, Western Dharwar Craton, Southern India
Richard W. Ojakangas, R. Srinivasan, V. S. Hegde, S. M. Chandrakant and S. V. Srikantia

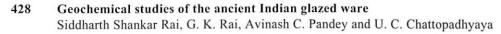
Integrated approach for snowmelt run-off estimation using temperature index model, remote sensing and GIS
 S. P. Aggarwal, Praveen K. Thakur, Bhaskar R. Nikam and Vaibhav Garg

408 Post-monsoon equilibrium beach profiles and longshore sediment transport rates at Candolim, Miramar and Keri beaches of Goa, India

Jaya Kumar Seelam, E. M. Yadhunath, M. Jishad, R. Gowthaman, C. Rajasekaran and P. S. Pednekar

RESEARCH COMMUNICATIONS

- 417 Estimation of magnetospheric plasma parameters from whistlers observed at low latitudes M. Altaf and M. M. Ahmad
- 424 Liquid-level sensing based on periodic evanescent field absorption from a multimode optical fibre
 Pabitra Nath, Iftak Hussain and Rajib Biswas



- 434 IGMIS a computer-aided information system on Indian Gondwana megaspores Nilay Govind, Rajni Tewari, S. S. K. Pillai and Arun Joshi
- Observations on reproductive performance of Indian mouse deer (Moschiola indica) in captivity
 Swapna Parvathi, Mallikarjun Rao, Vinod Kumar and Govindhaswamy Umapathy

BOOK REVIEWS

Child and Adolescent Mental Health, Usha S. Nayar (ed.) reviewed by Nithya Poornima
443 Higher Education in the Digital Age by William G. Bowen reviewed by Ramakrishna
Ramaswamy 443 Fauna of Maharashtra: Parts I and II, reviewed by A. N. Sirsikar and
D. D. Wanule 444 Indian Pandanaceae – an Overview by Altafhusain Nadaf and Rahul
Zanan reviewed by Ajit Kumar Shasany

PERSONAL NEWS

446 S. K. Bhattacherjee (1926–2013), Amit Roy

HISTORICAL NOTES

Charles Michie Smith – founder of the Kodaikanal (Solar Physics) Observatory and beginnings of physical astronomy in India
 N. Kameswara Rao, A. Vagiswari and Christina Birdie



■ COVER. Quartzite dropstone in diamictite. Evidence of glaciomarine origin in the Neoarchean Dharwar Sequence, India. See page 387.





Volume 106 Number 4

25 February 2014



494 In this issue

GUEST EDITORIAL

From Millennium Development Goals to sustainable development solutions 495 P. C. Kesavan and M. S. Swaminathan

CORRESPONDENCE

DST INSPIRE programme: need for an extended version, Anuj Saxena 497 Ethno-497 medico-botany is an adaptational strategy, Chandra P. Kuniyal and Hemlata 498 Climate change in affecting apple cultivation in Himachal Pradesh, H. R. Gautam, I. M. Sharma and Rohitashw Kumar ■ 499 Jadav Molai Payeng - the 'Forest Man of India', Dhrubajyoti Gogoi, Debajit Borah and R. N. S. Yadav

NEWS

2014 King Faisal International Prize for Science and Medicine, Sameen Ahmed Khan

501 500 2015 declared the International Year of Light and Light-based Technologies, Sameen Ahmed Khan 502 SERB to fund India-US collaborative research initiative on molecular materials, Megha Prakash 502 Strategies for increasing production and productivity of wheat and barley, Indu Sharma, R. K. Sharma and R. Sendhil 504 Nanotechnology-based innovation for environmental, energy and biomedical applications, B. Sunilkumar, Bikramjit Basu, Junichi Tatami and Atsushi Suzuki

COMMENTARY

Trendy science research communications, T. Ramasarma ■ 509 The discovery of nuclear 506 fission - a game changer in the history of scientific research, V. S. Ramamurthy

SCIENTIFIC CORRESPONDENCE

Impact of light, temperature, salinity and glycerol on the intensity of luminescence and 511 growth of marine bioluminescent bacteria Vibrio campbelli (strain STF1), Chatragadda Ramesh, Raju Mohanraju, Kada Narayana Murthy, Perumal Karthick and Sumantha Narayana ■ 514 Danainae congregation in the Konkan region of Maharashtra, India, Vinayak K. Patil, Milind D. Patil and Satish S. Narkhede 516 Oil pollution in Chilika lagoon: an anthropogenic threat to biodiversity, S. K. Baliarsingh, Subhashree Sahoo, Asutosh Acharya, H. B. Dalabehera, K. C. Sahu and Aneesh A. Lotliker

GENERAL ARTICLE

Artificial photosynthesis and the splitting of water to generate hydrogen 518 Urmimala Maitra, S. R. Lingampalli and C. N. R. Rao

REVIEW ARTICLE

Terracentric nuclear fission georeactor: background, basis, feasibility, structure, evidence 528 and geophysical implications J. Marvin Herndon

RESEARCH ARTICLES

- Airglow measurements of mesospheric wave structures and thermal gradient variability 542 over a low-latitude Indian station A. Taori
- Assessment of agricultural sustainability in changing scenarios 552 Prashant Goswami and Shiv Narayan Nishad









558 Environmental flow for the Yamuna river in Delhi as an example of monsoon rivers in India

Vikram Soni, Shashank Shekhar and Diwan Singh

Chloritization in Paleoproterozoic granite ore system at Malanjkhand, Central India: mineralogical studies and mineral fluid equilibria modelling

Dinesh Pandit

RESEARCH COMMUNICATIONS

- 582 Effect of agonists of adenosine receptors on inflammatory markers in human Muller cells Selva Kumar, Sher Zaman Safi, Rajes Ovist and Ikram Shah Ismail
- On the possibility of retrieving near-surface rain rate from the microwave sounder SAPHIR of the Megha-Tropiques mission
 C. Balaji, C. Krishnamoorthy and R. Chandrasekar
- Surface processes during flash floods in the glaciated terrain of Kedarnath, Garhwal Himalaya and their role in the modification of landforms

 Dhruv Sen Singh
- Kedarnath flash floods: a hydrological and hydraulic simulation study K. H. V. Durga Rao, V. Venkateshwar Rao, V. K. Dadhwal and P. G. Diwakar
- Carbon stocks in major soil types and land-use systems in semiarid tropical region of southern India
 K. Venkanna, Uttam Kumar Mandal, A. J. Solomon Raju, K. L. Sharma, Ravikant V. Adake, Pushpanjali, B. Sanjeeva Reddy, Rahul N. Masane, K. Venkatravamma and B. Peda Babu

BOOK REVIEWS

Invisible in the Storm: The Role of Mathematics in Understanding Weather by Ian Roulstone and John Norbury reviewed by Ravi S. Nanjundiah ■ 613 Comparative Biomechanics: Life's Physical World (Second Edition) by Steven Vogel reviewed by Sanjay P. Sane ■ 614 Annual Review of Plant Biology, 2013, Sabecha S. Merchant, Winslow R. Briggs and Donald R. Ort (eds) reviewed by Navjyoti Chakraborty and Nandula Raghuram

PERSONAL NEWS

616 Shah Vinodkant Chunilal (1929–2013), Mandava V. Rao

HISTORICAL NOTES

- 617 Bhavnagar Telescope: the most widely travelled telescope in the country N. Kameswara Rao, Christina Birdie and A. Vagiswari
- 619 Corrigendum: A doyen of Indian botanists: H. Y. Mohan Ram
 R. Maheshwari, K. R. Shivanna, R. Dore Swamy, K. Sankara Rao and Gita Mathur
 [Curr. Sci., 2014, 106(2), 305–309]
- 620 Publications received 2013
- 623 Selected articles from the Journals of the Indian Academy of Sciences



COVER. Photograph showing the confluence of Bhagirathi and Alaknanda at Deoprayag which forms the Ganga River. It also shows the deposition of recent sand and rise of water level 35–45 feet above the present day river water level during the June 2013 Kedarnath event. See page 594.

Volume 106 Number 5

10 March 2014



GUEST EDITORIAL

647 Traditional knowledge, wisdom and Ayurceuticals interfacing with modern science – a boon for a healthy India tomorrow V. Prakash

CORRESPONDENCE

Lessons from the recent publication scams, A. A. Shah ■ 649 The world of research according to Science and Engineering Indicators 2014, Gangan Prathap ■ 651 Shall we continue to inhale diesel exhaust — a potential human carcinogen, Jaya Prasad Tripathy ■ 651 Ganga Basin, Chetan Pandit; Response by Sharad Kumar Jain



The world of rock art, T. D. Mahabaleswara ■ 655 Drainage and dewetting of the tear film, K. V. Soumya ■ 655 Resonance: bringing together disciplines, Mayank Chugh ■ 657 Non-coding genomics, Meeta Sunil and K. Jinsha ■ 659 Need for strengthening mountain-specific research, G. C. S. Negi, R. S. Rawal, S. Sharma, Kireet Kumar and P. P. Dhyani ■ 661 Mars Orbiter Mission prepared to photograph Mars: some results from Earth Imaging Experiment, A. S. Arya and A. S. Kiran Kumar

IN CONVERSATION

662 Shiraz Minwalla, Apratim Kaviraj

OPINION

What makes Gujarat a hotspot for solar energy investments?, Komalirani Yenneti

COMMENTARY

Occupational health hazard in India: need for surveillance and research, Jaya Prasad Tripathy ■ 670 Defining malnutrition in India: how much is too little, how much is too much?, Raja Chakraborty and Kaushik Bose

SCIENTIFIC CORRESPONDENCE

Lichen colonization on nylon net houses in Surya-kunj Nature Interpretation site, Kosi-Katarmal, Almora, Uttarakhand, Yogesh Joshi, Geetanjali Bhakuni, Deepa Bisht, Manish Tripathi, Kapil Bisht, Shashi Upadhyay, Krishna Chandra and Ranbeer S. Rawal ■ 676 Impact of Prosopis juliflora on nesting success of breeding wetland birds at Vettangudi Bird Sanctuary, South India, S. Chandrasekaran, K. Saraswathy, S. Saravanan, N. Kamaladhasan and N. Arun nagemdran ■ 679 Excessively large-scale slumping of Sajnekhali creek banks in the Sundarban delta mangrove complex: a consequence of rising sea, Chandreyee De

GENERAL ARTICLES

- 681 Indian economics and Indian scholarly publishing: is there room for Current Science?
 Marcin Kozak, Olesia Iefremova, Mateusz Stopa and James Hartley
- The impact of inter-, trans- and multidisciplinarity on modern taxonomy of sciences Gheorghe Săvoiu
- 691 Falling through the cracks and bridging the gap India and USA showing similar trends Jayanta Chatterjee

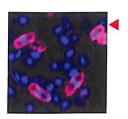
RESEARCH ARTICLES

698 Effect of record length and recent past events on extreme precipitation analysis R. S. Jagtap

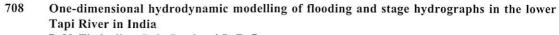












P. V. Timbadiya, P. L. Patel and P. D. Porey

717 Human role in shaping the hydromorphology of Himalayan rivers: study of the Tista River in Darjeeling Himalaya

Łukasz Wiejaczka, Anna Bucała and Subir Sarkar

RESEARCH COMMUNICATIONS

Hemolytic activity of mycobacterial TlyA (Rv1694) is independent of its rRNA methylation activity

Md. Aejazur Rahman and Musti V. Krishnasastry

Quantification of Sugarcane yellow leaf virus in in vitro plantlets and asymptomatic plants of sugarcane by RT-qPCR

C. Chinnaraja, R. Viswanathan, M. Sathyabhama, B. Parameswari, K. Bagyalakshmi, P. Malathi and D. Neelamathi

735 Chir pine ring-width thermometry in western Himalaya, India Jayendra Singh and Ram R. Yadav

739 Long-term deterioration of water quality of the Mvoti Estuary, KwaZulu-Natal, South Africa

Prisha Sukdeo, Srinivasan Pillay and Hari Ballabh

744 Ultrastructure of the focus region of the regenerated cycloid scale of an exotic fish, *Cyprinus carpio communis* L. as a possible key to comprehensive understanding of populations

M. S. Johal, Y. K. Rawal, Apneet Kaur and Amandeep Kaur

LIVING LEGENDS IN INDIAN SCIENCE

749 T. N. Ananthakrishnan, Anantanarayanan Raman

BOOK REVIEWS

754 Illustrated Genera of Smut Fungi by Kalman Vanky reviewed by N. D. Sharma ■ 755 Ishmael: An Adventure of the Mind and Spirit by Daniel Quinn reviewed by Kalpesh Joshi ■ 757 Applied Solid State Physics: A Textbook on Materials Science by M. R. Srinivasan reviewed by K. L. Narasimhan

PERSONAL NEWS

758 Shyam Swarup Agarwal (1941-2013), Nitya Anand

HISTORICAL NOTES

760 Brajendra Nath Seal – a sesquicentenary birth anniversary tribute Sujata Gupta, Prabir K. Gupta and Supratim Gupta



◆ COVER. The first photograph taken by Mars Colour Camera on-board Mars Orbiter Mission, on 19 November 2013 from an altitude of 67,975 km showing parts of Asia and Africa, including India. See page 661.

Volume 106 Number 6

25 March 2014

786	In this issue		
	GUEST EDITORIAL		
787	Science in the service of a symbiotic society Madhav Gadgil		
	CORRESPONDENCE		
789	Outsourcing in scientific research: a boon or a curse, Saad Tayyab and Amru N. Boyce 790 Budget cuts – an opportunity within the crisis for testing fiscal management and prudence in R&D spending, Shirish A. Ranade and Nikhil Kumar 790 Rationalization of the S.S. Bhatnagar Prizes scheme, Gangan Prathap 792 Uranium exploration, D. P. S. Rathore		
	NEWS		
793	The Tenth Ewald Prize and aperiodic crystals, N. K. Mukhopadhyay ■ 794 A mathematical treatment of geoscientifically relevant problems, Sujay Bandyopadhyay and Rajkumar Ghosh ■ 795 Towards water security through sustainable management of water resources, Kavita Shah, Ipsita Nandi and Nidhi Singh ■ 796 Regulating tourism and pilgrimage in the Himalaya, Rajeev Semwal, Kireet Kumar and P. P. Dhyani		
	RESEARCH NEWS		
798	Properties of a system of fundamental constituents of visible matter, Bedangadas Mohanty		
	OPINION		
800	An aftermath of the Human Genome Project: identify and nurture the geniuses, Ramesh Maheshwari 802 Large, secondarily collected data in biological and environmental sciences, T. N. C. Vidya		
-	COMMENTARY		
804	Scientific publishing – the Indian scenario, Ram K. Varma		
	SCIENTIFIC CORRESPONDENCE		
810	Study of geomorphic features along ECMI by GIS, M. Panigrahi and M. Das 813 Occurrence of Neoproterozoic animal embryos in the Chambaghat Formation of Himachal Lesser Himalaya, India, Sabyasachi Shome, V. K. Mathur, Shambhu Nath, Xiao Shuhai and Jesse Broce		
	GENERAL ARTICLES		
816	Bibliometrics and visualization analysis of artificial blood vessel research Li Zhang and Yakai Feng		
823	Competing endogenous RNA (ceRNA): a new class of RNA working as miRNA sponges P. K. Gupta		
	RESEARCH ARTICLES		
831	Design, development and validation of smart sensor drifting node with INSAT telemetry for oceanographic applications Shijo Zacharia, R. Seshasayanan, R. Srinivasan, T. Thamarai, Tata Sudhakar, R. R. Rao and		

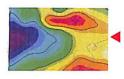
Numerical simulations of miscible channel flow with chemical reactions

J. N. Kusuma, Omar K. Matar and Kirti Chandra Sahu



M. A. Atmanand

841



853 Estimation of surface ice velocity of Chhota-Shigri glacier using sub-pixel ASTER image correlation

R. K. Tiwari, R. P. Gupta and M. K. Arora

Asad, Ghulam Muratza and Izhar Hussain

RESEARCH COMMUNICATIONS

860 Can El Niño induce stratosphere-troposphere exchange of ozone? Nandita D. Ganguly and K. N. Iyer

Inter- and intra-specific carbon and nitrogen assimilation by dinoflagellate and diatom species

Arvind Singh, R. Ramesh and Anna Godhe

870 Compensatory effects of medicinal plants of Pakistan upon prolongation of coagulation assays induced by Naja naja karachiensis bite

Muhammad Hassham Hassan Bin Asad, Durr-e-Sabih, Bashir Ahmad Choudary, Arooj Fatima

874 A dog's day with humans – time activity budget of free-ranging dogs in India Sreejani Sen Majumder, Ankita Chatterjee and Anindita Bhadra

BOOK REVIEWS

Annual Review of Phytopathology, 2013, Neal K. Van Alfen, Jan E. Leach and Steven Lindow reviewed by Pratibha Sharma and Veerubommu Shanmugam ■ 880 Introduction to Modeling Convection in Planets and Stars: Magnetic Field, Density Stratification, Rotation by Gary A. Glatzmaier reviewed by Ajay Manglik ■ 882 Information and Knowledge Management: Tools, Techniques and Practices, Ajit K. Roy (ed.) reviewed by K. B. Akhilesh

PERSONAL NEWS

884 P. L. Narasimha Rao (1913–2013), D. Rajagopal Rao and K. V. Nageshwar Rao

HISTORICAL NOTES

B86 Discovery of Kerria lacca (Insecta: Hemiptera: Coccoidea), the lac insect, in India in the late 18th century

Anantanarayanan Raman



COVER. Velocity vectors (blue arrows) and streamlines (yellow lines) representing surface ice velocity of the Chhota-Shigri glacier derived from correlation of ASTER images for the time interval 2003–2004 (note: blue vector length not to scale all over). See page 853.

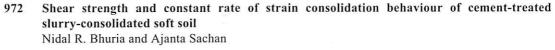
Volume 106 Number

10 April 2014

Volume 106 Number		10 April 2014
	910	In this issue
		EDITORIAL
	911	International World Water Day 2014, Focus: Water-Energy Nexus R. Srinivasan
	11	CORRESPONDENCE
· · · · · · · · · · · · · · · · · · ·	913	Accommodating outliers in Indian science, Sudarshan Ananth 913 Pros and cons of food-based interventions to overcome malnutrition, B. H. Rajashekar Reddy, A. G. Shankar and M. Udayakumar 914 Better health: an approach, S. Ganguli 915 Sustainable development of disaster-affected rural landscape of Kedar valley (Uttarakhand) through simple technological interventions, R. K. Maikhuri, Vikram S. Negi, L. S. Rawat and Ajay Maletha 916 Notes on conservation of 'RET' plants in India, Sauris Panda
		RESEARCH NEWS
	917	Architect of one's own destruction, Ipsita Herlekar
37		NEWS
	919	Climate science, Mayank Shekhar and Shaktiman Singh ■ 920 Mainstreaming mountain biodiversity conservation, Sejuti Basu ■ 921 Design and manufacturing technologies for orthopaedic biomaterials, B. Sunilkumar, Bikramjit Basu and Michael Gelinsky
V %-		IN CONVERSATION
4	924	Rishad Naoroji, Ipsita Herlekar
		OPINION
	927	Proposed functions of a university's plagiarism cell, P. Chaddah 928 Science education in India is dwindling: causes and potential remedies, Susanta Pahari
		SCIENTIFIC CORRESPONDENCE
	930	Diverse palynoflora from amber and associated sediments of Tarkeshwar lignite mine, Surat district, Gujarat, India, Hukam Singh, Bandana Samant, Thierry Adatte and Hassan Khozyem 932 Age of Himalayan cedar outside its natural home in the Himalayas, Ram R. Yadav, Krishna G. Misra, Bahadur S. Kotlia and Neha Upreti
		GENERAL ARTICLES
	936	To become a knowledge economy R. Chidambaram
	942	Scientific productivity versus efficiency of R&D financing: bibliometric analysis of African countries Cristian Mihai Dragos and Simona Laura Dragos
		REVIEW ARTICLE
	946	Cofactor regeneration – an important aspect of biocatalysis Vanita Uppada, Sumit Bhaduri and Santosh B. Noronha
		RESEARCH ARTICLES
	958	A bibliometric profile of Current Science Gangan Prathap
	964	Botanical Survey of India (1971–2010): a scientometric analysis Manohar Pathak and Kumar Avinash Bharati
		Manohar Pathak and Kumar Avinash Bharati







980 Fracture properties of steel fibre reinforced high-performance concrete containing nano-SiO₂ and fly ash Peng Zhang, Chen-Hui Liu, Qing-Fu Li, Tian-Hang Zhang and Peng Wang

988 Late Permian and Triassic palynomorphs from the Allan Hills, central Transantarctic Mountains, South Victoria Land, Antarctica
Ram Awatar, Rajni Tewari, Deepa Agnihotri, Sankar Chatterjee, S. S. K. Pillai and K. L. Meena

996 Erratum: Large, secondarily collected data in biological and environmental sciences T. N. C. Vidya [Curr. Sci., 2014, 106(6), 802–803]

RESEARCH COMMUNICATIONS

797 The expansion and impact of cement manufacturing units and mining areas in Lumshnong, Jaintia hills, Meghalaya
Kasturi Chakraborty and S. Sudhakar

1000 Hydrogeochemical assessment of groundwater in karst environments, Bringi watershed, Kashmir Himalayas, India
Nadeem A. Bhat, Gh. Jeelani and M. Yaseen Bhat

Are the Himalayan glaciers retreating?
 I. M. Bahuguna, B. P. Rathore, Rupal Brahmbhatt, Milap Sharma, Sunil Dhar, S. S. Randhawa, Kireet Kumar, Shakil Romshoo, R. D. Shah, R. K. Ganjoo and Ajai

BOOK REVIEWS

1014 Complexity, Institutions and Public Policy: Agile Decision-Making in a Turbulent World by Graham Room reviewed by Shivali Tukdeo ■ 1015 Climate Change in Sikkim: Patterns, Impacts and Initiatives, M. L. Arrawatia and Sandeep Tambe (eds) reviewed by S. K. Dash ■ 1017 The Governance of Energy Megaprojects: Politics, Hubris and Energy Security, Benjamin K. Sovacool and Christopher J. Cooper reviewed by Dilip R. Ahuja ■ 1018 Planetary Climates by Andrew P. Ingersoll reviewed by S. V. S. Murty

PERSONAL NEWS

1019 T. C. Narendran (1944–2013), Santhosh Shreevihar

HISTORICAL NOTES

1021 Subhuman primates in Shakespeare's oeuvre Sachi Sri Kantha



◆ COVER. Amur falcon (Falco amurensis), a small sized raptor is a resident of Siberia, northeastern China and Mongolia. In what is known to be one of the longest migratory routes, the Amur falcon travels all the way to southern Africa to escape the cold winters. (Photo: Ramki Sreenivasan/Conservation India). See page 924.

Volume 106 Number 8

06 Number 8	3	25 April 2014
	1046	In this issue
		GUEST EDITORIAL
50 76. 9	1047	Science and the Missing Manifestos
	- 10	D. Balasubramanian
7		CORRESPONDENCE
	1049	Ethical crisis, A. Rajanikanth 1049 Are pollen herbaria redundant? Their utility in botanical studies, Arti Garg 1051 Pharmacoeconomics – fourth dimension for drug evaluation in India, P. M. Muragundi
		NEWS
	1052	Evaluation of herbicide resistance in different biotypes of <i>Phalaris minor</i> , Raghwendra Singh, Bhumesh Kumar, Meenal Rathore and A. R. Sharma 1052 Endocrine disruptors, M. Balasubramanyam, M. Michael Aruldhas, K. Balasubramanian, J. Arunakaran and B. Ravi Sankar 1054 Science trends in North-East India, B. G. Unni and A. K. Mukerjee
		RESEARCH NEWS
	1056	Raman scattering, terrestrial ringwoodite and beyond, S. Das Sharma and D. S. Ramesh
		OPINION
	1058	Status of technology transfer in India – the much needed Magic Remedy Sanhita Rath, Ajaz Nathani, Daxesh Patel, Preeti Kulkarni and Vikram Gota
		COMMENTARY
	1061	Economics of the one laptop per child in India, Jeffrey James 1063 Legally binding Minamata Convention on Mercury: politics and science behind, Ashwani Sharma
		SCIENTIFIC CORRESPONDENCE
	1066	Use of endophytic bacterium (<i>Pseudomonas</i> sp., MTCC9476) in propagation and conservation of <i>Ginkgo biloba</i> L.: A living fossil Anita Pandey, Priyanka Sati, Mukesh K. Malviya, Shipra Singh and Ajay Kumar
		GENERAL ARTICLES
	1068	Taking publicly funded innovations to the marketplace: lessons from Germany Sabyasachi Saha
	1074	Socio-economic empowerment of women through 'Science, Technology and Innovation Policy, 2013' – the missing link? Sunita Sangar
	1081	Bisphenol A migration study in baby feeding bottles of selected brands available in the Indian market N. D. Shrinithivihahshini, D. Mahamuni and N. Praveen
AND DESCRIPTION OF THE PARTY OF		



RESEARCH ARTICLES

1085 Development of fast image analysis technique for All-Sky images
A. K. Sharma, D. P. Nade, S. S. Nikte, R. N. Ghodpage, P. T. Patil, M. V. Rokade,
R. S. Vhatkar and S. Gurubaran

Antimony sorption and removal on carbon steel/magnetite surfaces in relation to pressurized heavy water reactors
S. J. Keny, A. G. Kumbhar, A. Sanjukta, S. Pandey, S. Ramanathan and G. Venkateswaran

1101 Mahogany seed – a step forward in deciphering autorotation Mukul Rao, Dhruv C. Hoysall and Jagadeesh Gopalan

RESEARCH COMMUNICATIONS

- 1110 India's declining share in computational mechanics research
 Gangan Prathap
- A study on channel migration of the Subansiri river in Assam using remote sensing and GIS technology

 Chinmoyee Gogoi and Dulal C. Goswami
- 1121 Wave forecasting and monitoring during very severe cyclone Phailin in the Bay of Bengal T. M. Balakrishnan Nair, P. G. Remya, R. Harikumar, K. G. Sandhya, P. Sirisha, K. Srinivas, C. Nagaraju, Arun Nherakkol, B. Krishna Prasad, C. Jeyakumar, K. Kaviyazhahu, N. K. Hithin, Rakhi Kumari, V. Sanil Kumar, M. Ramesh Kumar, S. S. C. Shenoi and Shailesh Nayak
- Occurrence of native gold and gold-silver alloy in the olivine gabbro of layered cumulate sequence of Naga Hills ophiolite, India
 N. C. Ghose
- 1130 Predatory drilling in Tertiary larger foraminifera from India Rosina Syed, Sampa Sarkar and S. Sengupta
- Functional morphology of Melonis barleeanum and Hoeglundina elegans: a proxy for water-mass characteristics

 Ajoy K. Bhaumik, Anil K. Gupta, Steven C. Clemens and Richa Mazumder

BOOK REVIEWS

1141 The Story of Helium and the Birth of Astrophysics by Biman B. Nath reviewed by Srihari Keshavamurthy 1142 Tesla: Inventor of the Electrical Age by W. Bernard Carlson reviewed by Mainak Sengupta 1143 Data Mining Techniques by Arun K. Pujari reviewed by M. Narasimha Murty 1144 Annual Review of Microbiology, 2013, Susan Gottesman, Caroline S. Harwood and Olaf Schneewind (eds) reviewed by V. Nagaraja

HISTORICAL NOTES

1146 The knight of sugar industry: T. S. Venkatraman (1884–1963)
Ramesh Maheshwari and Anantanarayanan Raman



COVER. Image of Equatorial Plasma Bubbles' signature of OI 630.0 nm obtained by All Sky Imager on 3-4 April 2014 at 23:59:57 IST from Kolhapur, India. See page 1085.

Volume 106 Number 9

10 May 2014

,	10 May 2014
1170	In this issue
	GUEST EDITORIAL
1171	Scientific Authorship: Giving Credit Where Credit Is Due Richard N. Zare
	CORRESPONDENCE
1173	Assessing researchers based on membership of journal editorial boards, Subbiah Gunasekaran ■ 1174 Chemical crystallography in India, H. Manohar ■ 1175 Uttaranchal or Uttarakhand in Current Science: let research find a solution, Chandra P. Kuniyal
	NEWS
1176	A step towards prevention of onion shortage, Jai Gopal
	RESEARCH NEWS
1178	Two decades of Indian research on Ninetyeast Ridge reveal how seafloor spreading and mantle plume activities have shaped the eastern Indian Ocean, K. S. Krishna
	IN CONVERSATION
1180	Jocelyn Bell Burnell, Megha Prakash
	COMMENTARY
1182	The real and metaphorical chemistry of the Nobel Prizes, Sumit Bhaduri
	SCIENTIFIC CORRESPONDENCE
1184	Acute encephalitis syndrome in children in Muzaffarpur: hypothesis of toxic origin, T. Jacob John and Mukul Das 1186 A wild boar hunting: predation on a bonnet macaque by a wild boar in the Bandipur National Park, southern India, Shreejata Gupta and Anindya Sinha 1187 Ant runners: an analysis of running speed of Leptogenys processionalis (Hymenoptera: Formicidae: Ponerinae), P. N. Ravindra
	GENERAL ARTICLES
1190	Patenting trends among the SAARC nations: comparing the local and international patenting intensity Tarakanta Jana, Siddhartha Dulakakhoria, Nupur Wadia, Deepak Bindal and Ankit Tripathi
1196	Crowdsourcing to create national repositories of microbial genetic resources: fungi as a model T. S. Suryanarayanan and Venkat Gopalan
1201	Forest area estimation and reporting: implications for conservation, management and REDD+ N. H. Ravindranath, I. K. Murthy, Joshi Priya, Sujata Upgupta, Swapan Mehra and Srivastava Nalin
	SPECIAL SECTION: COMPUTATIONAL CHEMISTRY AND MOLECULAR

An ab initio molecular dynamics study of water-carbon tetrachloride liquid-liquid

Structural properties of solid energetic materials: a van der Waals density functional study

interface: nature of interfacial structure, hydrogen bonds and dynamics

G. Vaitheeswaran, K. Ramesh Babu, N. Yedukondalu and S. Appalakondaiah

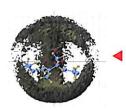
Debashree Chakraborty, Bhabani S. Mallik and Amalendu Chandra

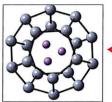
20 P

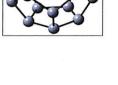
SIMULATION

1207

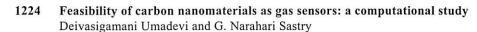
1219











1235 Intermolecular structure in tri-n-butyl phosphate/n-octane mixtures: a molecular dynamics simulation study

Anirban Mondal and Sundaram Balasubramanian

1243 CO adsorption on Fe_N (N = 1-4) transition metal clusters: a density functional theory study Vivek Sinha and Pradip Kr. Ghorai

1249 Unexpected mechanism for formal [2 + 2] cycloadditions of metallacyclocumulenes Subhendu Roy and Eluvathingal D. Jemmis

1255 Stabilization of the C₂₀ cage by encapsulation of H⁺ and He²⁺ ions
R. P. S. Abhijith Kumar, Sagarika Dev, Brijesh Kumar Mishra and N. Sathyamurthy

RESEARCH ARTICLES

1260 Planetary waves – major forcing agent in generating stratospheric and mesospheric quasi biennial oscillation

Veena Suresh Babu and Geetha Ramkumar

1270 Emissions of volatile organic compounds from biomass burning sources and their ozone formation potential over India
Kumud Pandey and L. K. Sahu

On-site visualization monitoring for long span bridge on Delhi Metro Project
Chitoshi Izumi, Shinichi Akutagawa, Ch. Ravi Sekhar, Rajan Kataria, Reiko Abe and
Hirofumi Haga

RESEARCH COMMUNICATIONS

Outgoing longwave radiations as pre-earthquake signals: preliminary results of 24 September 2013 (M 7.7) earthquake
N. Venkatanathan and V. Natyaganov

1297 Impact of assimilation of Megha-Tropiques ROSA radio occultation refractivity by observing system simulation experiment
C. J. Johny and V. S. Prasad

1306 Precise Pb-Pb baddeleyite ages of 1765 Ma for a Singhbhum 'newer dolerite' dyke swarm Ravi Shankar, B. Vijayagopal and Anil Kumar

BOOK REVIEWS

The Physics of Disordered Systems. Texts and Readings in Physical Sciences-II. Gautam I. Menon and Purusattam Ray (eds) reviewed by Deepak Dhar ■ 1312 Randomness in Evolution by John Tyler Bonner reviewed by Raghavendra Gadagkar ■ 1313 Wildlife Conservation in a Changing Climate, Jedediah F. Brodie, Eric Post and Daniel F. Doak (eds) reviewed by Jayashree Ratnam

LIVING LEGENDS IN INDIAN SCIENCE

1315 Marthanda Varma Sankaran Valiathan Indira Nath



■ COVER. Association of tri-n-butylphosphate molecules in n-octane solution: A molecular dynamics perspective. Created with VMD. See page 1235.

Volume 106 Number 10

	25 May 2014
1334	In this issue
-	GUEST EDITORIAL
1335	El Niño and the summer monsoon of 2014 Sulochana Gadgil
ya	CORRESPONDENCE
1337	Improving scientific research, even without changing our bureaucracy, P. Chaddah ■ 1338 Peer review: single-blinded or double-blinded?, Jiang Zhao ■ 1339 The Marsili Seamount, the biggest European volcano, could be still active!, Antonino D'Alessandro
	NEWS
1340	Superior substrate reported for cultivation of shiitake mushrooms, H. R. Gautam 1340 Traditional Knowledge Digital Library: a distinctive approach to protect and promote Indian indigenous medicinal treasure, Saikat Sen and Raja Chakraborty
	OPINION
1344	Leprosy is in principle eradicable – a possible approach, G. P. Talwar
	COMMENTARY
1345	Indian pharmaceutical industry: policies, achievements and challenges, Rajesh Kochhar
	TECHNICAL NOTE
1348	Design of an ion trap for trapping single ¹⁷¹ Yb ⁺ S. De, N. Batra, S. Chakraborty, S. Panja and A. Sen Gupta
	1 (A)



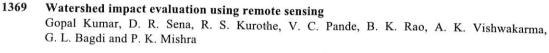
SCIENTIFIC CORRESPONDENCE

1353 Occurrence of groundwater in the Ponnaiyar river catchment covering eastern parts of Bangalore city, Karnataka, India, K. C. Subhash Chandra and G. V. Hegde

GENERAL ARTICLES

- 1357 Arid ecosystem: future option for carbon sinks using microbial community intelligence Leena Agarwal, Asifa Qureshi, Vipin Chandra Kalia, Atya Kapley, Hemant J. Purohit and R. N. Singh
- 1364 Depeasantization in Punjab: status of farmers who left farming Sukhpal Singh and Shruti Bhogal

RESEARCH ARTICLES

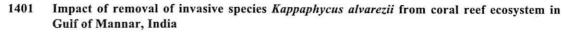


- 1379 Keystone food resources for honey bees in South Indian west coast during monsoon C. Balachandran, M. D. Subash Chandran and T. V. Ramachandra
- 1387 Effect of chromium (VI) on wheat seedlings and the role of chelating agents Bishnu C. Das, Aparajeya Panda, Pramod K. Sahoo, Somanath Jena and Payodhar Padhi
- One-pot synthesis of biodiesel from high fatty acid Jatropha curcas oil using bio-based basic 1394 ionic liquid as a catalyst Eragam Ramamohan Reddy, Mukesh Sharma, Jai Prakash Chaudhary, Hetal Bosamiya and Ramavatar Meena









B. Kamalakannan, J. Joyson Joe Jeevamani, N. Arun Nagendran, D. Pandiaraja and S. Chandrasekaran

RESEARCH COMMUNICATIONS

- 1409 Selective binding of trans-zeatin present in Kappaphycus alvarezii sap using an ionic liquid Arun Kumar Das, Nidhi Bhatt and Kamalesh Prasad
- 1414 Experimental and numerical analysis on heat transfer characteristics of shoe brush-shaped fins

S. Rangadinesh, M. Rajasekar, S. Arunkumar and M. Venkatesan

- 1421 Persistence of endosulfan in selected areas of Kasaragod district, Kerala P. S. Harikumar, K. Jesitha, T. Megha and Kamalakshan Kokkal
- Microbial diversity in termite nest
 A. Manjula, S. Sathyavathi, M. Pushpanathan, P. Gunasekaran and J. Rajendhran

BOOK REVIEWS

From Dust to Life: The Origin and Evolution of our Solar System by John Chambers and Jacqueline Mitton reviewed by J. N. Goswami ■ 1437 Fundamentals of Photochemistry (Third Edition) by K. K. Rohatgi-Mukherjee reviewed by Ashok Kumar Mishra ■ 1437 Fundamentals of Asymmetric Synthesis by David Krupadanam reviewed by Srivari Chandrasekhar

LIVING LEGENDS IN INDIAN SCIENCE

1438 C. V. Subramanian
D. Jayarama Bhat, J. Muthumary, C. Rajendran, S. Raghu Kumar and B. P. R. Vittal



◆ COVER. Transition of invasive species Kappaphycus alvarezii from sheet-like appearance to dome-like structure, showing its extraordinary phenotypic plasticity. See page 1401.

Volume 106 Number 11

10 June 2014

1462 In this issue

GUEST EDITORIAL

1463 Our backyard wildlife: Challenges in coexisting with uneasy neighbours Mewa Singh and M. Ananda Kumar

CORRESPONDENCE

Uneven playing field: women scientists in research laboratories, Namrata Gupta ■ 1467 Leading Indian higher education institutions and the Leiden 2014 and SIR 2013 rankings, Gangan Prathap

NEWS

Drosophila melanogaster: a tiny fruit fly is invigorating research in India, Krishanu Ray and Subhash C. Lakhotia ■ 1470 Resistance to Yellow Vein Mosaic Virus and Okra Enation Leaf Curl Virus: challenges and future strategies, S. K. Sanwal, Major Singh, B. Singh and P. S. Naik

COMMENTARY

1472 From policy statements to real policy, Olga V. Ustyuzhantseva 1474 Uniqueness of magnetic field in promoting life on Earth, U. R. Rao

TECHNICAL NOTE

An indigenous echelle grating spectrograph for simultaneous trace elemental analysis by atomic emission spectroscopy

Dinesh V. Udupa, Sanjiva Kumar, Omana Narayanan, Padma B. Patil, S. Ajaykumar, R. Sampathkumar, K. Thankarajan and Naba K. Sahoo

SCIENTIFIC CORRESPONDENCE

Livelihood security through Litchi (Litchi chinensis L.)-based agri-horticultural models for resource-poor communities of Indian Sub-Himalaya, Avinash Chandra Rathore, H. Lal, N. K. Sharma, Harsh Mehta, J. Jayaprakash and O. P. Chaturvedi ■ 1484 Chemical weathering of biotite in the Ganga Alluvial Plain, Dharmendra Kumar Jigyasu, Rohit Kuvar, Shahina, Priyanka Singh, Sandeep Singh, Indra Bir Singh and Munendra Singh ■ 1487 Is irrigation water causing degradation in black soils?, D. G. Padekar, T. Bhattacharyya, P. D. Deshmukh, S. K. Ray, P. Chandran and P. Tiwary

GENERAL ARTICLES

- 1490 Global research output of nanobiotechnology research: a scientometrics study R. Karpagam
- On the integration of Ayurveda and biomedicine: perspectives generated from interviews with Ashtavaidya Ayurveda physicians of Kerala
 Annamma Spudich and Indudharan Menon

RESEARCH ARTICLES

- 1505 Academic performance evaluation using soft computing techniques Ramjeet Singh Yadav, P. Ahmed, A. K. Soni and Saurabh Pal
- Delivery of repaglinide-cholestyramine complex loaded ethylcellulose microspheres to gastric mucosa for effective management of type-2 diabetes mellitus

 Sunil K. Jain, Ashok K. Sahoo, Mukesh Gupta, Aditya Nath Pandey, Amrish Kumar and Akhlesh K. Jain







Mechanical properties of fly ash concrete composite reinforced with nano-SiO $_2$ and steel fibre

Peng Zhang, Ya-Nan Zhao, Qing-Fu Li, Tian-Hang Zhang and Peng Wang

1538 Effect of copper on calcium-modified alumina-supported cobalt catalysts towards Fischer-Tropsch synthesis

Sudip Maity, Olusola O. James, Biswajit Chowdhury and Aline Auroux

RESEARCH COMMUNICATIONS

1548 Kalman filtered GPS accelerometer-based accident detection and location system: a low-cost approach

Md. Syedul Amin, Mamun Bin Ibne Reaz, Mohammad Arif Sobhan Bhuiyan and Salwa Sheikh Nasir

- 1554 Simulation study on the photoacoustics of cells with endocytosed gold nanoparticles Ratan K. Saha, Madhusudan Roy and Alokmay Datta
- Monitoring of dengue and chikungunya viruses in field-caught Aedes aegypti (Diptera: Culicidae) in Surat city, India

 Mandar S. Paingankar, Mangesh D. Gokhale, Keshav G. Vaishnav and Paresh S. Shah
- 1568 Climatic response of various tree ring parameters of fir (*Abies pindrow*) from Chandanwadi in Jammu and Kashmir, western Himalaya, India
 Somaru Ram and H. P. Borgaonkar
- 1576 Efficacy of two dominant marker systems, ISSR and TE-AFLP for assessment of genetic diversity in biodiesel species *Pongamia pinnata*Shyam Sundar Sharma, Keshaw Aadil, Madan Singh Negi and Shashi Bhushan Tripathi

LIVING LEGENDS IN INDIAN SCIENCE

1581 Udupi Ramachandra Rao

V. Jayaraman

BOOK REVIEWS

Water Governance: An Evaluation of Alternative Architectures, Asanga Gunawansa and Lovleen Bhullar (eds) reviewed by Chetan Pandit ■ 1592 Climate Dynamics by Kerry H. Cook reviewed by Krishna AchutaRao .

HISTORICAL NOTES

1594 Edward Green Balfour (1813–1889) and his contributions to Indian agriculture and forestry
Anantanarayanan Raman



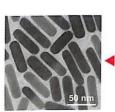
COVER. Hummatu, Datura stramonium. Sap of the leaves of this plant made into an ointment is used to reduce swelling in traditional Indian medicine. The alkaloids Scopolamine and Atropine are two of the active ingredients isolated from this plant. Hortus Indicus Malabaricus, 1678, vol. 2, plate 28, Amsterdam. Hand coloured copper plate engraving. See page 1500.

Volume 106 Number 12

25 June 2014







1/22	*		
1622	In	this	issue

GUEST EDITORIAL

1623 Can planting new trees help to reduce global warming? G. Bala

CORRESPONDENCE

1625 Contrary to prevailing perceptions, many political parties are indeed serious about science, technology and innovation!, Pallava Bagla 1628 The inclusion of science in election manifestos, Chetan Datta Poduri 1629 'Modifesto' in science and technology, Annamraju Rajanikanth

NEWS

1630 Sixth International Conference on Nano Science and Technology, Ashok K. Ganguli 1632 Public engagement with science, technology and innovation, Parul R. Sheth

IN CONVERSATION

1634 Hari Om Vats, K. V. Soumya

COMMENTARY

1637 Integrating aboveground-belowground responses to climate change P. C. Abhilash and Rama Kant Dubey

RESEARCH NEWS

Chronochromic smart tag to replace expiry date in packed perishable food items 1639 C. Srinivasan and R. Saraswathi

SCIENTIFIC CORRESPONDENCE

Significance of clastic injectites in the syn-rift Terani Clay Member, Sivaganga Formation 1641 Cauvery Basin, Tamil Nadu, India, Amruta R. Paranjape, Anand S. Kale and Kantimat G. Kulkarni 1643 Proboscia alata (Brightwell) Sandström bloom in the coastal waters off Bekal, southwest India, Anit M. Thomas, M. G. Sanilkumar, K. C. Vijayalakshmi, A. A Mohamed Hatha and A. V. Saramma

GENERAL ARTICLES

Evaluation of Asian university rankings: position and perspective of leading Indian higher 1647 education institutions Veljko Jeremic and Marina Jovanovic-Milenkovic

Comparative performance of India with other BRICS countries in publishing science and 1654 engineering research papers S. A. Hasan and Rajesh Luthra

Damming rivers in the tectonically resurgent Uttarakhand Himalaya 1658 K. S. Valdiya

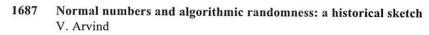
SPECIAL SECTION: THEORY OF COMPUTATION

Foreword 1669 R. K. Shyamasundar

The computing legacy of Alan M. Turing (1912-1954) 1669 R. K. Shyamasundar

1681 Turing and animal coat patterns Ramesh Hariharan





1693 A brief history of polynomial identity testing Manindra Agrawal

1696 Conversations: from Alan Turing to NP-completeness
Jaikumar Radhakrishnan

RESEARCH ARTICLES

1702 CLIMEX simulated predictions of Oriental fruit fly, *Bactrocera dorsalis* (Hendel) (Diptera: Tephritidae) geographical distribution under climate change situations in India V. Sridhar, A. Verghese, L. S. Vinesh, M. Jayashankar and P. D. Kamala Jayanthi

Emergence of epizootic ulcerative syndrome: large-scale mortalities of cultured and wild fish species in Uttar Pradesh, India
 P. K. Pradhan, G. Rathore, N. Sood, T. R. Swaminathan, M. K. Yadav, D. K. Verma, D. K. Chaudhary, R. Abidi, P. Punia and J. K. Jena

RESEARCH COMMUNICATIONS

1719 Impregnation of S-layer protein isolated from extremophilic Bacillus licheniformis NARW 02 onto titanium phosphate ceramic enhances uranium removal from aqueous solution R. Selvakumar, S. Aravindh, J. Ravichandran, U. Kamachi Mudali, C. Anandbabu and Baldev Raj

1725 Geochemistry of pegmatites from South Delhi Fold Belt: a case study from Rajgarh, Ajmer district, Rajasthan
Kumar Batuk Joshi, Soumya Ray, Deepak Joshi and Talat Ahmad

1731 Pollination ecology of Himalayan sea buckthorn, *Hippophae rhamnoides* L. (Elaeagnaceae) Yash Mangla and Rajesh Tandon

1735 Impact of climate change on the flowering of Rhododendron arboreum in central Himalaya, India
Kailash S. Gaira, Ranbeer S. Rawal, Balwant Rawat and Indra D. Bhatt

1739 Fish distribution dynamics in the Aghanashini estuary of Uttara Kannada, west coast of India Mahima Bhat, V. N. Nayak, M. D. Subash Chandran and T. V. Ramachandra

LIVING LEGENDS IN INDIAN SCIENCE

1745 Bulusu Lakshmana Deekshatulu N. Viswanadham and V. V. S. Sarma

BOOK REVIEWS

1750 Optoelectronics and Optical Fiber Sensors by Asit Baran Maity reviewed by Bishnu P. Pal
■ 1752 Vainu Bappu: The Man Who Knew the Stars by M. S. S. Murthy reviewed by
Rajesh Kocchar ■ 1755 Annual Review of Genetics, 2013, Bonnie L. Bassler et al. (eds)
reviewed by K. P. Arunkumar

PERSONAL NEWS

1757 Parthasarathy Ganguly (1942–2014), M. S. Hegde

HISTORICAL NOTES

1759 The arsenic and mercury-containing Tanjore pills used in treating snake bites in the 18th century Madras Presidency, Ramya Raman, Anantanarayanan Raman and P. Ram Manohar



COVER. Coat pattern of an animal. See page 1681 for an article on Turing and animal coat patterns.

