CURRENT SCIENCE

Volume 112 Number 3

10 February 2017

434 In this issue

GUEST EDITORIAL

Borders in science and nations are artificial. Should we have borders within India?

E. Arunan

CORRESPONDENCE

437 Excellence mapping of research performance in India during the 2009–2013 window, Gangan Prathap ■ 439 Doksa: the traditional system of livestock farming in Zanskar, Jammu and Kashmir, India, Anup Raj

NEWS

440 Science Last Fortnight ■ 444 Ninth field training course in glaciology, 2016, Manish Pandey, Sarvagya Vatsal and Aditya Mishra ■ 445 Introduced herbivores and their management in the Andaman Islands, Nitya Prakash Mohanty and K. Ravichandran

RESEARCH NEWS

Containing contamination: trees, fungi and bacteria to the rescue, Pavithra P. Nayak 449 Discovery of a massive ancient tectonic slab in the southeastern Indian Ocean: implications for the Indian Ocean geoid low, N. Purnachandra Rao, M. Ravi Kumar and Kusumita Arora

OPINION

Why research papers should not be anonymous?, Sachi Sri Kantha 452 The Indian ISSN conundrum, G. Mahesh

COMMENTARY

Melamine adulteration of food: detection by point-of-care testing tool
Nitish Rai and Dibyajyoti Banerjee

SCIENTIFIC CORRESPONDENCE

Solvent effect on population distribution of conformers of N-acetyl L-prolyl N'methylamide, Nibedita Mishra, Pranab K. Mohapatra, Ganesh C. Dash and Mukesh K.
Raval ■ 458 ICP-OES analysis of Naja naja karachiensis venom: inorganic
ions for turning on and off enzymatic actions, Muhammad Hassham Hassan Bin
Asad, Anna Katharina Jäger and Izhar Hussain ■ 460 Screening and
comparison of two edible macrofungi of Auricularia spp., Sujata Devi
Wangkheirakapam and Joshi Devi Datt ■ 463 Malaria risk mapping: a study of
Visakhapatnam district, B. Hema Malini, B. Visweswara Reddy, M. Gangaraju and
Kakani Nageswara Rao

GENERAL ARTICLES

- Virtual herbarium of Kerala Forest Research Institute, Peechi, Kerala, India V. B. Sreekumar, K. H. Hussain and C. Renuka
- 471 Farm ponds for climate-resilient rainfed agriculture Ch. Srinivasa Rao, R. Rejani, C. A. Rama Rao, K. V. Rao, M. Osman, K. Srinivasa Reddy, Manoranjan Kumar and Prasanna Kumar



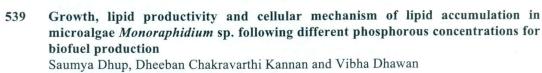
478	Groundwater assessment in a canal command area for sustainable irrigation in a	
	part of the Indo-Gangetic alluvial plain	
	P. K. Srivastava and Rai Mohan Singh	

REVIEW ARTICLES

- 490 Antisense oligonucleotides as therapeutics and their delivery Bhagyashree Gurav and Ganga Srinivasan
- 499 Developments in vibration control of structures and structural components with magnetorheological fluids K. Rama Raju and D. Vineeth Varma
- 509 A paradigm shift in agroforestry practices in Uttar Pradesh Pooja Verma, Arvind Bijalwan, Manmohan J. R. Dobriyal, S. L. Swamy and Tarun Kumar Thakur

RESEARCH ARTICLES

- 517 Implementation of stochastic approach for vessel and ridge studies in retinopathy of prematurity screening S. Prabakar, K. Porkumaran, Parag K. Shah and V. Narendran
- An improved chemical reaction-based approach for multiple sequence alignment 527 Rohit Kumar Yadav and Haider Banka



- Geospatial multicriteria approach for solid waste disposal site selection in 549 Dehradun city, India V. V. Sai Krishna, Kamal Pandey and Harish Karnatak
- Recognition of hydrocarbon microseepage using microbial and adsorbed soil gas 560 indicators in the petroliferous region of Krishna-Godavari Basin, India M. A. Rasheed, M. Lakshmi, M. S. Kalpana, D. J. Patil and A. M. Dayal
- 569 Biodegradation of crude oil using marine Bacillus species from Vadinar coast, Gujarat, India Najmuddin Mulani, Abhay B. Fulke, Edna D'Souza, Anirudh Ram, Aayushi Maloo, Faraz Sayed and S. N. Gajbhiye
- 577 Analysis of historical trends in hydrometeorological variables in the upper Cauvery Basin, Karnataka, India B. C. Kumar Raju and Lakshman Nandagiri

RESEARCH COMMUNICATIONS

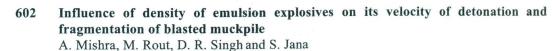
- Coding the encoded: automatic decryption of kaTapayAdi and AryabhaTa's 588 systems of numeration R. Anusha, C. Nithya, R. Venketeswara Pai and V. Ramanathan
- 591 Mahi: a unique traditional herbal ink of early Assam Barsha R. Goswami, Monoj K. Das, Pranjal P. Das, Tapas Medhi, Anand Ramteke Simanta Hazarika and Robin K. Dutta
- Climate change-driven shifts in elevation and ecophysiological traits of Himalayan 595 plants during the past century Priyanka Agnihotri, Tariq Husain, Pramod Arvind Shirke, Om Prakash Sidhu, Harsh Singh, Veena Dixit, Anzar Ahmad Khuroo, Devindra Vijay Amla and Chandra Shekhar Nautiyal











- Record of post-collisional A-type magmatism in the Alwar complex, northern Aravalli orogen, NW India
 Parampreet Kaur, Nusrat Eliyas and Naveen Chaudhri
- Conservation of jack wood (Artocarpus heterophyllus Lamk.) sculptures in an ancient temple in Kerala, South India: identification of heritage wood samples, neem gum-cashew nut shell liquid application in consolidation and preservation M. P. Sujith, L. Rajeswari, T. Sreelakhmi and E. V. Anoop
- Antiproliferative effects of fluorine substitute 3,5-di-tert-butylphenol bearing Schiff bases using CFSE-based cell proliferation assay

 Ali Osman Gurol, Veli Kasim and Faruk Suzergoz
- Comparative analysis of digestive amylase activity in some tropical and temperate breeds of mulberry silkworm, *Bombyx mori* L.
 N. A. Ganie, Afifa S. Kamili, K. A. Sahaf, Imtiyaz Murtaza, K. A. Dar and M. A. Malik
- 629 Silent foray of three soft scale insects in India Sunil Joshi and A. Rameshkumar
- 635 Identification of generalist and specialist phenotypes of the peach-potato aphid Myzus persicae (Insecta: Hemiptera: Aphididae) in agroecosystem of northeast India

Basant K. Agarwala and Parna Bhadra



Changing Profile of the Indian Vaccine Innovation System by Kunal Sinha, reviewed by Hemant Kumar 642 Prodrug Design: Perspectives, Approaches and Applications in Medicinal Chemistry, Vivekkumar K. Redasani and Sanjay B. Bari, reviewed by S. Chandrasekhar 643 Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation by Christopher Sneddon, reviewed by Sudhirendar Sharma

PERSONAL NEWS

644 V. Ramamurti (1938–2016), K. Ramesh and P. T. Manoharan 645 M. A. L. Thathachar (1939–2017), P. S. Sastry and B. J. Oommen



■ COVER. Drilling and blasting operation in an opencast coal mine. See page 602.

Indexed in CURRENT CONTENTS/GEOBASE/CHEMICAL ABSTRACTS/IndMED/SCOPUS/WEB OF SCIENCE

CURRENT SCIENCE

Volume 112 Number 4

25 February 2017

670	In this issue
-	GUEST EDITORIAL
671	Women in STEMM: involve the institutions! Rohini M. Godbole
× 3	CORRESPONDENCE
673	Fallacy of teaching-research nexus, Hardev Singh Virk 673 Priced submissions in medical journals and publication hegemony, Sanjeev Rastogi 674 Municipal solid waste management in Thailand, Khamphe Phoungthong
	NEWS
675	Science Last Fortnight 679 India International Science Festival, Ajit Kumar Nayak 680 World Science Day, Purva Gupta
	RESEARCH NEWS
682	NgAgo: a new genome editor, Kulbhushan Chaudhary and Anirudha Chattopadhyay
	OPINION
684	The relevance of management education, Jayanta Chatterjee 686 Water governance and public participation: what matters?, V. Dhanya and G. Renoy
	COMMENTARY
688	Impacts of the middle route of South to North Water Transfer Project on water environment in China, Ming Dou, Peipei Zhao and Yanyan Wang
	SCIENTIFIC CORRESPONDENCE



A critique on the paper 'Agricultural biotechnology and crop productivity: macrolevel evidences on contribution of Bt cotton in India', Andrew Paul Gutierrez, Luigi Ponti and Johann Baumgärtner 693 Arenaria thangoensis W.W.Sm. (Caryophyllaceae), a threatened species hitherto considered endemic to Sikkim rediscovered from the Western Himalaya, India, Satish Chandra and D. S. Rawat 695 Species richness estimate of freshwater rotifers (Animalia: Rotifera) of western Maharashtra, India with comments on their distribution, Avinash Isaac Vanjare, Chitra Avinash Vanjare Nee Panikar and Sameer Mukund Padhye

GENERAL ARTICLES

- Mind the gap: reflections on the art of science Ravi Subrahmanyan
- 703 Should Indian researchers pay to get their work published?
 Muthu Madhan, Siva Shankar Kimidi, Subbiah Gunasekaran and Subbiah Arunachalam

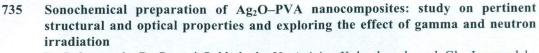
REVIEW ARTICLES

- 714 Optical nanoscopy tools for biologists: advancements of fluorophores and optics for high resolution and live imaging

 Dhermendra K. Tiwari, Manisha Tiwari and Bikash R. Sahoo
- 725 A bibliometric review of research trends in neuroimaging Andy Wai Kan Yeung, Tazuko K. Goto and W. Keung Leung



RESEARCH ARTICLES



B. Behmanesh, D. Rezaei-Ochbelagh, Y. Azizian-Kalandaragh and Gh. Imanzadeh-Karkaragh



743 Ab initio and DFT study of prototropic and metallotropic 1,5-shifts of isolobal cyclopentadienyl derivatives

Zahra Javanshir, Saeed Jameh-Bozorghi and Ali-reza Namdari

750 A concept of knowledge and technology enabled empowerment of rural Indian villages

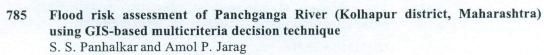
Anil Kakodkar, Babruvahan Ronge, Ajit Patankar, Smita Mule and Prashant Pawar

Leaf surface wax composition of genetically diverse mulberry (Morus sp.) genotypes and its close association with expression of genes involved in wax metabolism
 H. M. Mamrutha, K. N. Nataraja, N. Rama, D. K. Kosma, T. Mogili, K. Jhansi Lakshmi, M. Udaya Kumar and M. A. Jenks



767 Winter fog experiment over the Indo-Gangetic plains of India

Sachin D. Ghude, G. S. Bhat, Thara Prabhakaran, R. K. Jenamani, D. M. Chate, P. D. Safai, A. K. Karipot, M. Konwar, Prakash Pithani, V. Sinha, P. S. P. Rao, S. A. Dixit, S. Tiwari, K. Todekar, S. Varpe, A. K. Srivastava, D. S. Bisht, P. Murugavel, Kaushar Ali, Usha Mina, M. Dharua, Y. Jaya Rao, B. Padmakumari, A. Hazra, N. Nigam, U. Shende, D. M. Lal, B. P. Chandra, A. K. Mishra, A. Kumar, H. Hakkim, H. Pawar, P. Acharja, Rachana Kulkarni, C. Subharthi, B. Balaji, M. Varghese, S. Bera and M. Rajeevan





Paleoarchean zircons from quartzite of South Bundelkhand Supracrustal Complex: origin and implications for crustal evolution in Bundelkhand Craton, Central India

Alexander Slabunov, Vinod K. Singh, Kumar Batuk Joshi and Xiaoli Li

802 In situ U-Pb zircon micro-geochronology of MCT zone rocks in the Lesser Himalaya using LA-MC-ICPMS technique
P. K. Mukherjee, Saurabh Singhal, Vikas Adlakha, S. K. Rai, Som Dutt, Aditya Kharya and A. K. Gupta

Geodynamic significance of the updated Statherian-Calymmian (at c. 1.65 and 1.46 Ga) palaeomagnetic results from mafic dykes of the Indian shield

T. Radhakrishna and Ram Chandra

823 Coastal morphodynamics of Tupilipalem Coast, Andhra Pradesh, southeast coast of India

G. Sreenivasulu, N. Jayaraju, B. C. Sundara Raja Reddy, T. Lakshmi Prasad, B. Lakshmanna and K. Nagalakshmi



RESEARCH COMMUNICATIONS

Two-dimensional imaging of a second-order nonlinear optical process
Indrajit Bhattacharyya and Debabrata Goswami

Measurement of CO₂ adsorption using the cost-effective dynamic column breakthrough method

Lakshminarayana Kudinalli Gopalakrishna Bhatta, Seetharamu Subramanyam, Madhusoodana D. Chengala, Umananda Manjunatha Bhatta, Krishna Venkatesh and

V. Raghavendra

CURRENT SCIENCE, VOL. 112, NO. 4, 25 FEBRUARY 2017

- 839 In vitro compatibility of fungi for the biosorption of zinc(II) and copper(II) from electroplating effluent
 Arifa Tahir, Zunaira Lateef, Ahmed Abdel-Megeed, Essam N. Sholkamy and Ashraf A. Mostafa
- Long-term exposure to combined treatment of elevated CO₂ and salt induces iron deficiency responses in *Porteresia coarctata* Deepanwita Purohit, Maganti Sowjanya, Anand Kumar Pal, H. M. Sankararamasubramanian and Ajay Parida
- 849 Petrographic texture of sediments vis-à-vis aquifer characteristics from WGAMG'0 watershed, Chandrapur district, Maharashtra, India Y. A. Murkute
- Wind-induced response of half-storey outrigger brace system in tall buildings
 Ali Kheyroddin and Hamid Beiraghi

BOOK REVIEWS

Annual Review of Microbiology, 2015, Susan Gottesman, Caroline S. Harwood and Olaf Schneewind (eds), reviewed by Mohan C. Joshi ■ 863 The Unfathomable World of Amazing Numbers by Wallace Jacob, reviewed by Vinod Kumar Mangwani

PERSONAL NEWS

- Anjan Kundu (1953–2016), M. Lakshmanan and Bikas K. Chakrabarti
- 866 C. V. Vishveshwara (1938–2017), Naresh Dadhich and Bala Iyer
- 869 Publications received 2016



■ COVER. The figure illustrates the reversible photo-switching mechanism of photoswitchable fluorescent proteins used for nanoscopic imaging. Photoswitching fluorescent proteins are the key components for nanoscopy, which allowed to achieve images well below the diffraction limit of light. The images shown in the background are wide-field and its corresponding superresolution image of actin bundle-filament obtained with PALM microscopy using Kohinoor photoswitchable fluorescent protein. See page 714.

Indexed in CURRENT CONTENTS/GEOBASE/CHEMICAL ABSTRACTS/IndMED/SCOPUS/WEB OF SCIENCE