

CURRENT SCIENCE

Volume 115 Number 9

10 November 2018

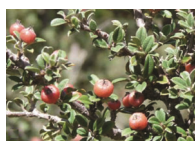
1618 In this issue

EDITORIAL

- 1619 Tech start-ups and their ecosystems in India**
M. H. Bala Subrahmanya

CORRESPONDENCE

- 1621 Should plant breeders be denied of genetic resources from protected areas?,** Kuldeep Singh, K. Joseph John and K. Pradheep ■ **1622 *Cotoneaster buxifolius* Wall. ex Lindl., a vulnerable shrub species in Kodaikanal Wildlife Sanctuary, Tamil Nadu, India,** A. Ravi Kiran and Kabeer



NEWS

- 1623 Science Last Fortnight** ■ **1627 Directed evolution – bringing the power of evolution to the laboratory: 2018 Nobel Prize in Chemistry,** Sheenam Verma and Dinakar M. Salunke ■ **1631 T-cells and cancer immunotherapy (immunoncology): the 2018 Nobel Prize in Physiology or Medicine,** P. K. Gupta ■ **1636 Clouds, microphysical processes and small-scale simulations,** Bipin Kumar, Moumita Bhowmik and Ravi S. Nanjundiah

COMMENTARY

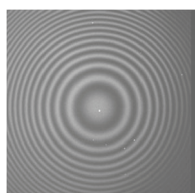
- 1638 The journey of the world’s first non-steroidal contraceptive from Academic venture to National family programme,** Niti Kumar, Garima Pant and Sripathi Rao Kulkarni ■ **1641 Testing the limits of quantum mechanics,** Tejinder Pal Singh

GENERAL ARTICLES

- 1644 Periodic table of elements revisited for accommodating elements of future years**
M. C. Rath
- 1648 Biobusiness in brief: what ails clinical trials?**
Gayatri Saberwal
- 1653 Bibliometric and social network analysis in scientific research on precision agriculture**
José Luis Aleixandre-Tudó, Lourdes Castelló-Cogollos, José Luis Aleixandre and Rafael Aleixandre-Benavent

SPECIAL SECTION: ASIAN FORUM FOR POLAR SCIENCES

- 1668 Preface**
Rahul Mohan and Clemente Michael Wong Vui Ling
- 1669 Occurrence of ice-bonded sediments in the Mackenzie Trough, Beaufort Sea**
Young-Gyun Kim, Young Keun Jin, Sookwan Kim, Seung-Goo Kang and Jong Kuk Hong
- 1674 Ground-based observations for the upper atmosphere at Jang Bogo Station, Antarctica: preliminary results**
Ji Eun Kim, Jeong-Han Kim, Geonhwa Jee, Changsup Lee, Hyuck-Jin Kwon, Young-Bae Ham, Terence Bullett, Qian Wu, Justin Mabie and Nikolay Zabolotin



- 1679 **Palaeolimnological records of regime shifts from marine-to-lacustrine system in a coastal Antarctic lake in response to post-glacial isostatic uplift**
Badanal Siddaiah Mahesh, Abhilash Nair, Anish Kumar Warriar, Anirudha Avadhani, Rahul Mohan and Manish Tiwari
- 1684 **Effects of vertically propagating mountain waves during a strong wind event over the Ross Ice Shelf, Antarctica**
Sheeba Nettukandy Chenoli, John Turner and Azizan Abu Samah
- 1690 **Population dynamics of bacterioplanktonic component associated with the phytoplankton biomass in Kongsfjorden, an Arctic fjord**
Rupesh Kumar Sinha, K. P. Krishnan and Savita Kerkar
- 1695 **Draft genome sequence of a novel actinobacterium from the family Intrasporangiaceae isolated from Signy Island, Antarctica**
S. M. Thomas, P. Convey, H. M. Gan, D. A. Pearce and G. Y. A. Tan
- 1697 **Effects of field warming on a High Arctic soil bacterial community: a metagenomic analysis**
P. P. J. Lim, K. K. Newsham, P. Convey, H. M. Gan, W. C. Yew and G. Y. A. Tan
- 1701 **Analysis of bacterial communities of King George and Deception Islands, Antarctica using high-throughput sequencing**
C. Y. Chua, S. T. Yong, M. A. González, P. Lavin, Y. K. Cheah, G. Y. A. Tan and C. M. V. L. Wong
- 1706 **Genome sequences of two cold-adapted *Cryobacterium* spp. SO1 and SO2 from Fildes Peninsula, Antarctica**
C. P. Teoh, C. M. V. L. Wong, D. J. H. Lee, M. A. González, N. Najimudin, P. C. Lee and Y. K. Cheah
- 1709 **Microbial eukaryotic diversity with emphasis on picoprasinophytes under the sea ice of the central Arctic Ocean in summer**
Wei Luo, Huirong Li, Xiaoyan Gao, Ling Lin, Yong Yu and Yinxin Zeng

REVIEW ARTICLE

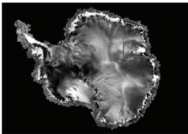
- 1714 **The malaise of under-representation of women in science: the Indian story**
Charu Malhotra

RESEARCH ARTICLES

- 1724 **Tree-based classification of tabla strokes**
Subodh Deolekar and Siby Abraham
- 1732 **Photocatalytic degradation of aqueous phenanthrene in a slurry photocatalytic reactor: optimization and modelling**
C. Nirmala Rani and S. Karthikeyan
- 1741 **Microbial biomass carbon and nitrogen in relation to cropping systems in Central Himalaya, India**
Kirtika Padalia, S. S. Bargali, Kiran Bargali and Kapil Khulbe
- 1751 **Population dynamics of *Betula ermanii* in response to climate change at the Changbai Mountain treeline, China**
Xiaodong Wang, Weihua Dong, Huiqing Liu, Zhengfang Wu, Weihong Fan and Junhu Dai
- 1761 **Semi-empirical model for predicting pot-hole depth in underground coal mining**
Lokhande D. Ritesh, V. M. S. R. Murthy and Singh Kalendra
- 1770 **$^{10}\text{Be}/^9\text{Be}$ ratios of Cauvery river delta sediments, southern India: implications for palaeo-denudation rates in the catchment and variation in summer monsoon rainfall during Late Quaternary**
Soumya Prakash Dhal, S. Balakrishnan, Pankaj Kumar, Pramod Singh, Alok Sharan and Sundeep Chopra
-



RESEARCH COMMUNICATIONS

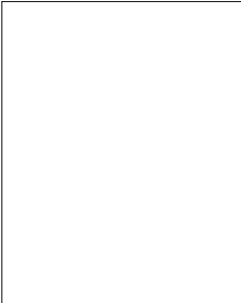
- 1782 **Development of a unique full-scale real-fire façade testing facility at IIT Gandhinagar**
Gaurav Srivastava, Chinmay Ghoroi, Pravinray Gandhi, V. Jagdish, G. Karthikeyan, Aravind Chakravarthy and Dharmit Nakrani
- 1787 **Monitoring of total volatile organic compounds and particulate matter in an indoor environment**
Manisha Gaur, Kirti Bhandari and Anuradha Shukla
- 1793 **Developing a management plan for Loktak Lake considering Keibul Lamjao National Park and hydropower demand using a data driven modeling approach**
Kh. Eliza, R. Khosa, A. K. Gosain and A. K. Nema
- 
- 1799 **Rift assessment and potential calving zone of Amery Ice Shelf, East Antarctica**
Simone Darji, Sandip R. Oza, R. D. Shah, B. P. Rathore and I. M. Bahuguna
- 1805 **Phenology of a temperate fern *Dryopteris wallichiana* (Spreng.) Hyl. (Dryopteridaceae) in Uttarakhand, India**
N. Punetha, J. N. Pant, R. Punetha and K. Bhakuni

BOOK REVIEWS

- 1810 **History of Science, Philosophy and Culture in Indian Civilization, Volume XII, Part 4: Modern Atomism.** J. Pasupathy (ed.); *reviewed by* T. V. Ramakrishnan
- 1811 **Annual Review of Cell and Developmental Biology, 2017.** Randy Schekman, Larry Goldstein and Ruth Lehmann (eds); *reviewed by* R. Nagaraj

HISTORICAL NOTES

- 1813 **E. C. G. Sudarshan and the quantum mechanics of charged-particle beam optics**
Sameen Ahmed Khan



◀ COVER. Response of polar regions to climate change. See special section.

The Editor thanks Dr Rahul Mohan, National Centre for Polar and Ocean Research (formerly National Centre for Antarctic and Ocean Research), Headland Sada, Vasco-da-Gama 403 804, Goa, India and Dr Clemente Michael Wong Vui Ling, Biotechnology Research Institute, Universiti Malaysia Sabah, 88400 Kota Kinabalu, Sabah, Malaysia for agreeing to be Guest Editors for special section.

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