

# CURRENT SCIENCE

Volume 118 Number 2

25 January 2020



An insight into the Southern Chinkara population

Pigment analysis of palm leaf manuscripts

Fluoride removal from groundwater

# CURRENT SCIENCE

Volume 118 Number 2

25 January 2020

- 
- 174 In this issue**
- GUEST EDITORIAL**
- 175 The Saha equation turns hundred**  
Rajaram Nityananda
- 
- NEWS**
- 177 Science Last Fortnight**
- 181 Science education for the visually impaired**  
Raka Ray Mandal
- 182 Luminescence dating**  
Sheikh Nawaz Ali and Shubhra Sharma
- 
- OPINION**
- 184 Punitive provision to tackle predatory journals**  
Koushik Sau
- 
- COMMENTARY**
- 186 The Department of Geology, Institute of Science, Banaras Hindu University, Varanasi: A success story of 100 years**  
N. V. Chalapathi Rao
- 189 Emergence and burden of antibiotic drug resistance: an endogenous cycle**  
Bhawna Malik and Samit Bhattacharyya
- 
- SCIENTIFIC CORRESPONDENCE**
- 192 Treeline migration and settlement recorded by Himalayan pencil cedar tree-rings in the highest alpine zone of western Himalaya, India**  
Krishna G. Misra, Vikram Singh, Akhilesh K. Yadava, Sandhya Misra and Ram R. Yadav
- 195 *In vitro* rearing and gallery tunnelling pattern of Island pinhole borer, *Xyleborus perforans* (Wollaston), a scolytid associated with pomegranate wilt complex**  
P. D. Kamala Jayanthi, T. Raghava, T. Nagaraja and K. Sreedevi
- 
- GENERAL ARTICLE**
- 199 Policy matrix for sustainable soil management and climate-resilient agriculture**  
P. Dey
- 
- RESEARCH ARTICLES**
- 202 CHandra's Atmospheric Composition Explorer-2 onboard Chandrayaan-2 to study the lunar neutral exosphere**  
Tirtha Pratim Das, Smitha V. Thampi, M. B. Dhanya, Neha Naik, P. Sreelatha, P. Pradeepkumar, G. Padma Padmanabhan, B. Sundar, Dinakar Prasad Vajja, Amarnath Nandi, R. Satheesh Thampi, Vipin K. Yadav, J. K. Abhishek, Md. Nazeer, P. T. Lali, Rosmy John, A. V. Aliyas, Vijay Kumar Sen, M. Ramprabhu and A. Ajay Krishna

-  210 **Dual Frequency Radio Science experiment onboard Chandrayaan-2: a radio occultation technique to study temporal and spatial variations in the surface-bound ionosphere of the Moon**  
R. K. Choudhary, K. R. Bindu, Kumar Harshit, Rahul Karkara, K. M. Ambili, T. K. Pant, Devadas Shenoy, Chandrakanta Kumar, N. Hemanth Kumar Reddy, T. K. Rajendran, M. Nazer and M. Shahajan

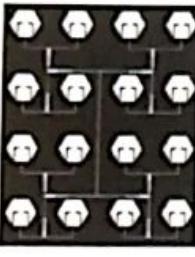
-  219 **Chandrayaan-2 Large Area Soft X-ray Spectrometer**  
V. Radhakrishna, A. Tyagi, S. Narendranath, Koushal Vadodariya, Reena Yadav, Brajpal Singh, G. Balaji, Neeraj Satya, Akash Shetty, H. N. Suresha Kumar, Kumar, S. Vaishali, Netra S. Pillai, S. Tadepalli, Venkata Raghavendra, P. Sreekumar, Anil Agarwal and N. Valarmathi

-  226 **L- and S-band Polarimetric Synthetic Aperture Radar on Chandrayaan-2 mission**  
Deepak Putrevu, Sanjay Trivedi, Anup Das, Dharmendra Pandey, Priyanka Mehrotra, S. K. Garg, Venkata Reddy, Shalini Gangele, Himanshu Patel, Devendra Sharma, R. Sijwali, Nikhil Pandya, Amit Shukla, Gaurav Seth, V. M. Ramanujam and Raj Kumar

-  234 **Evaluation on physico-chemical and corrosion properties of anodized aluminium surface using sodium oxalate-sodium silicate bath at room temperature**  
M. Mubarak Ali and S. Sathiya

-  243 **Occupational accidents: a comparative study of construction and manufacturing industries**  
Shabir Hussain Khahro, Tauha Hussain Ali, Nafees Ahmed Memon and Zubair Ahmed Memon

-  249 **Performance enhancement of hexagonal-patch dual-band array antenna with omega-shaped DGS for dual Band RADAR Applications**  
Kanchan Wagh and S. S. Shriramwar

-  255 **Field experience of Fluoride Nilogen: a method of fluoride removal from groundwater**  
Rajkamal Mohan, Sweety Gogoi, Anup J. Bora, Gautam Baruah, Shreemoyee Bordoloi, Asadulla A. Ali, Hridip R. Sarma and Robin K. Dutta

-  264 **Ecological determinants of occupancy and abundance of chinkara (*Gazella bennettii*) in Yadahalli Wildlife Sanctuary, Karnataka, India**  
Dinesh Kumar, Avadhoot D. Velankar, Nitin Venkatesh Ranga Rao, Honnavalli N. Kumara, Partha Sarathi Mishra, Prodyut Bhattacharya and Vijay Mohan Raj

#### RESEARCH COMMUNICATIONS

-  271 **Linguistic resources to facilitate science education**  
Uma Maheswari Viswanathan, A. Shahin Sultana and Suhasini Shankar

-  273 **Design and development of a low-cost GNSS drifter for rip currents**  
Surisetty V. V. Arun Kumar, Rakesh Kumar Luhar, Rashmi Sharma and Raj Kumar

-  280 **Bioprocess development for enhanced production of probiotic *Bifidobacterium bifidum***  
Suhail Mohammed Hussain, Manali Naik, L. Arbaaz Ahmed, Minal Udipli and Sunil Kumar Sukumaran

-  285 **Pigment analysis of palm leaf manuscripts of India**  
Deepakshi Sharma, Manager Singh, Gabriela Krist and M. Velayudhan Nair

-  292 **Mtb-HID: a unified database of host-pathogen interaction for various *Mycobacterium tuberculosis* strains**  
Kumud Pant, Devvret, Neema Tufchi, Ajay Pandaya and Ashish Thapliyal

-  297 **Effect of storage conditions on vermicompost quality**  
Pankaj Kumar, Pawan Sharma, Tilak Ranjan Kumar, H. C. Sharma and R. C. Dubey

- 300 A comparative study of antioxidant activity and total phenolic content of fresh juices of some common Indian fruits with their commercial counterparts**  
Brototi Roy, Jyoti Singh and Tanya Dewan

---

#### BOOK REVIEWS

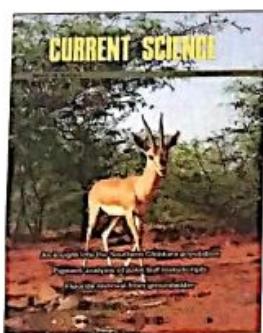
- 305 Annual Review of Medicine, 2019.** Mary E. Klotman, Michael S. Parmacek and Howard A. Rockman (eds); *reviewed by C. C. Kartha*
- 307 Ultrafast Optics and Spectroscopy in Physical Chemistry.** Atanu Bhattacharya; *reviewed by Sivarama Krishnan*
- 

#### PERSONAL NEWS

- 309 M. V. George (1928–2019)**  
Suresh Das; H. Ila (nee Ila Bhatnagar) and S. Sivaram
- 

#### HISTORICAL NOTES

- 312 Bhagawati Charan Guha and discovery of the molecular magnet**  
Rajarshi Ghosh
- 



◀ COVER. The Chinkara of Yadahalli. (Photo: Mr H. B. Doni). See page 264.

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