In this issue

Integrity in Science
Frauds, fabrication, plagiarism

Since 1975, there has been a ten-fold increase in the retractions of scientific papers due to fraud or suspected fraud, points out a General Article in this issue. What are the driving factors in the contamination of scientific literature with data fabrication, plagiarism and other forms of scientific misconduct? What can be done to reduce or perhaps even eliminate the chances of the search for truth leading us to deliberate distortions?

Though by the very nature of science, any scientific misconduct will be found out sooner or later, it is a roadblock for earnest researchers, wastes efforts, slows down scientific and technological progress, and even leads to morbidity and mortality as in the case of data fabrication in biomedical research. Should we, therefore, criminalise the purposeful insertion of falsehoods into scientific literature?

Researchers from Portugal analyse the issues and suggest solutions on **page 205** in this issue.

Aspirations of AstroSat
Story of scientific success

In 2003, ISRO initiated India's first dedicated astronomy satellite project, AstroSat. Besides ISRO, various national and international organisations actively contributed to plan, develop and test various payloads and subsystems of the first Indian space observatory – a multi-wavelength satellite that covers the far and near UV and a wide range of X-ray bands of the electromagnetic spectrum. AstroSat was finally launched on 28 September 2015. In five years, many researchers from 48 countries took advantage of the space observatory, publishing hundreds of reports.

A Review Article in this issue covers the trials and tribulations in this venture, some sequences from the successes and problems and prospects of such a scientific mission which laid foundations for similar scientific explorations of deep space from space near the earth. Turn to **page 214** for details.

Danger of Dengue
Escape using epidemiology

Kerala reports more than 10% of dengue cases in the country. Kanjirappally in Kottayam district, especially, has faced outbreaks of dengue and reported quite a few fatalities. There are four known serotypes of the dengue virus. Which serotype is more prevalent in the region? There are two species of Aedes mosquitoes known to transmit the disease. Which one is more active here? What is the immune status of the people here, in terms of the different antibodies produced in response to dengue viruses? Are there differences between urban and rural areas, between men and women, between children and adults? What is the best time in the year to initiate and sustain preventive efforts? Scientists from the ICMR-Vector Control Research Centre answer such questions in this issue. In a Research Article on **page 233**, they provide insights on what can be done to prevent dengue outbreaks.

Tea Plantations
Bird diversity

Tea plantations first started appearing in India in the mid eighteenth century. Cutting down vast forests to plant tea went on unrestrained and now we have more than six lakh hectares under tea and have gained the status of the second largest producer of tea.

In the early days, tea gardens were rich with humus, but soon fertilisers, pesticides and growth promoters had to be used to improve productivity, often indiscriminately, till the problems of such processes became apparent. A few plantations gradually started reducing the use of agrochemicals and adopting nature friendly natural farming methods.

Tea has historically been cultivated as a monoculture, with sparse shade of silver oak, originally an Australian tree, in tea gardens in South India.

In the Valparai Plateau of the Anamalai Hills, Western Ghats, there are protected forests along with monoculture tea plantations with silver oak, some that retain various native tree species, plantations that use agro-chemicals and plantations that practice organic farming. A perfect opportunity for researchers from the Nature Conservation Foundation to compare the various forest and tea ecosystems in terms of bird diversity and abundance.

In a Research Article in this issue, T. R. Shankar Raman *et al.* present their findings – for the benefit of researchers, conservationists, ecologists, bird lovers and plantation owners. Turn to **page 294**.

Seed Boring Wasp
Besting the pest

Anselmella kerrichi is a seed boring wasp. Immature fruits of jamun are its favourite for oviposition. The larvae bore into seeds, pupate and by the time the fruit ripens and falls, complete the metamorphosis to come out as wasps.

When a plant is thus attacked by herbivores, it emits volatiles – which, in some cases, help attract the predators of herbivores and, in other cases, attract or repel the conspecific or heterospecific herbivore species. What exactly is the case with *A. kerrichi* infesting jamun fruits?

The search for the answer led researchers from the ICAR-Indian Institute of Horticultural Research to potential methods for pest control, using volatile olfactory cues that the wasp depends on to find the right fruit for oviposition. Read the Research Article on **page 286** for a scientific journey into unexpected discoveries.

K. P. Madhu
scienceandmediaworkshops@gmail.com