

In this issue

Research on Traditional Medicine?

Head to AYUSH portal

Modern scientific databases are not too helpful to researchers searching for literature related to ayurveda, yoga, unani, siddha, naturopathy, homeopathy or sowa-rigpa. A great amount of literature on these topics is in Sanskrit, Persian, Tamil or other languages and not in English. So, even PubMed, which focuses on bio-medical literature, is inadequate. An initiative to fill this lacuna was started a decade ago, in the form of the AYUSH research portal.

A General Article in this issue tells us about the concept of enabling search using terminologies of modern medicine. It also details the processes followed to execute it: brainstorming with stakeholders, software design, alignment of the categories to WHO's international classification of diseases, the problems in populating the database, including the problem of scanning and digitising available literature, etc. Now the portal provides access to nearly 32,000 articles – a blessing for researchers working on traditional, complementary or integrative medicine.

Turn to **page 747** for details.

Cis–Trans Isomerases

Drug targets for infections?

The peptide bond between two amino acids can create isomers. However, in most cases, the *cis* form predominates because it is energetically more favourable. This pattern is broken in the case of amino acids just preceding proline where the difference in the extra energy requirement to form a *trans* isomer is not too significant. Life on earth leverages on this and there is a multitude of enzymes, *cis–trans* isomerases, which can switch the structure of a protein. These isomerases control a large part of the machinery inside cells, organs and organisms.

A Review Article in this issue classifies the plethora of such isomerases, based on their structures helping readers get quick insights into the switches of molecular effectors in living systems. The authors then examine the role of isomerases in infections by various pathogens, especially viruses. The peptidyl-prolyl *cis–trans* isomerases, the authors argue, are effective drug targets for a variety of diseases and, perhaps we should use the strategy for COVID-19 too.

Turn to **page 758** for details.

Sustainable Sand Quarrying

Case study: Damodar River

The demand for sand has increased rapidly in India due to urbanisation and increasing infrastructure based on concrete and cement mortar. Now that India is self-sufficient in food and clothing, housing for all is a target. And that means that sand will be quarried in greater quantities from river beds – more than can be replenished by natural processes.

Sand deposition and sedimentation on any specific stretch of the river depends on many factors. There are some stretches where sand mining can be done on a limited scale whereas, in others, removing sand would have disastrous consequences. In a Research Article in this issue, Prasanta Kumar Ghosh and Narayan Chandra Jana analyse the factors involved in the context of the lower stretches of the Damodar River – from Durgapur to Jamalpur.

Besides identifying areas where indiscriminate sand mining has harmed the river and the environment, they come up with recommendations for sustainable sand quarrying in different stretches of the river. The authors try to identify appropriate reaches of the river and methods for mining sand, based on the morphological responses of the river.

Besides researchers, people living near the Damodar and the authorities in charge of regulating mining activities need to read the article on **page 810**.

Dust Devils on Mars

Lightning and Schumann resonance

During the southern hemispheric summer of Mars, air currents turn into whirlpools, raising dust. Though not as big as tornadoes on the earth, the dry dust can get charged and lightning becomes a possibility in the low-pressure atmosphere of the planet. The electromagnetic waves that are generated can encircle the planet and some may combine to create Schumann resonance, just as they do on the earth.

Researchers at the Physical Research Laboratory, Ahmedabad explore this possibility by analysing the factors involved and find that the shape of the dust devil is the most important factor.

Schumann resonance can provide a lot of clues about the planet. But there are no detectors *in situ* yet. The researchers suggest that the next exploration to Mars set up detectors there to provide data relevant for understanding the atmospheric electrical phenomena on the planet.

Read the Research Article on **page 769**.

Assessing Architectural Heritage

Odishan temples

How does one assess the value of architectural heritage? The question is important from the point of view of taking decisions about protecting, preserving or conserving the past in the form of a construction. And if that is a place of worship, the assessment becomes even more complicated.

Researchers from NIT Rourkela provide an answer, taking Odishan temples as example. Read the Research Article on **page 823**, to know more.

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