

## In this issue

### Music and Medicine

#### *Controlling blood pressure*

Music is said to have therapeutic effects. But most of the research done to test this hypothesis is done using western music. Does Indian classical music have similar effects?

Researchers from the SSN College of Engineering, and Chettinad Academy of Research and Education, Chennai, enrolled 200 hypertensive participants, living in an old-age home, as volunteers for the study. The researchers split the volunteers into two groups. Those that were interested in listening to Carnatic music during their leisure time were included in the experimental group and the remaining hundred were taken as control.

Both groups received their regular drug therapy. But the participants in the experimental group also listened to a sitar rendering of raga Malkauns (equivalent to Hindolam in Carnatic music) for 15 minutes every day for a month. The researchers monitored the heart rate, respiratory rate and the average pressure in the arteries of the patients in both groups.

Now, the researchers report their findings in a Research Article on **page 612** in this issue. This meditative raga with high valence and low arousal does reduce the symptoms significantly, say the authors.

It seems that expenses on medicines can be significantly reduced with classical music freely available on the Net.

### Thermophiles of Hot Springs

#### *In cold Ladakh*

Ladakh is situated more than three and a half kilometres above the sea level. The temperatures here go down to nearly minus 40 degrees

centigrade in winter. The region also has hot springs where the temperatures go up to more than 70 or even 80 degrees! Even under such extreme temperatures, life thrives: the thermophiles.

How do they survive? What are the mechanisms that help them to take up glucose – the most common carbon source for bacteria – and convert it into lipids that they produce in such copious quantities?



Scientists from the Birbal Sahni Institute of Palaeosciences, Lucknow, scooped up biofilms from heat-loving microbial populations along with water from Panamik and Puga hot springs. Feeding them glucose that is labelled with glucose containing a different isotope of carbon, they could estimate the capability of these tiny creatures to take up food from their surroundings.

While showing that the thermophiles in the hot springs have extremely high capacity to take up glucose and that it depends not only on temperatures but also on the availability of other nutrients, the Research Communication on **page 644** in this issue opens up hot questions for some cool research.

### Elephants as Seed Dispersers

#### *Sri Lankan case study*

Birds are well-known seed dispersers. In fact, lantana becomes invasive

because of birds that eat the fruits and drop the seeds in far locations. And ficus grows on buildings because of bird droppings that contain seeds. The passage through the gut improves the chances of germination for many plants.

But how about Asian elephants? Elephants also consume fruits. Do they help in seed dispersal and in improving the germination of seeds they consume?

Scientists from Sri Lanka probed the problem. The Kaudulla National Park in the North-Central Province in Sri Lanka has many Asian elephants. From July to September 2015 during the fruiting season, the researchers went around the Park looking for dung piles. They collected three boli each from 66 fresh dung piles. Only about a third of the dung piles contained seeds. Seeds from ten distinct plant species were recovered.

They tried to germinate seeds of all species. Jackfruit seeds from the dung piles showed the highest germination. In the case of *Bauhinia racemosa* 60 ingested seeds and 40 fresh seeds were used for comparison. The ingested seeds of *Bauhinia* germinated faster than the fresh seeds.

Though none of the seeds was dependent on passage through elephant gut, abundance of *Bauhinia racemosa* in the park may be due to elephants, say the authors. They also discuss the differences between African and Asian elephants in this regard and suggest evolutionary explanations. Read the Research Communication on **page 648** for more.

K. P. Madhu

Science Writing Consultant

[scienceandmediaworkshops@gmail.com](mailto:scienceandmediaworkshops@gmail.com)