

## In this issue

### Diabetic Nephropathy

The number of people living with diabetes is increasing. A large proportion of these patients develop chronic kidney disease over time. A review article in this issue examines the risk factors and prevalence of the problem in different regions and countries. With more than 60% of diabetic patients developing the pathology, India is facing an epidemic of diabetic nephropathy.

The review summarises what is known about the metabolic changes in diabetes, and how they set off signalling cascades and differential gene expression leading to a reduced antioxidant status. The enlargement of the kidneys and the hemodynamic shifts in the kidneys to accommodate the changes, over time, lead to slow degradation of the functions of the kidneys.

The review on **page 899** in this issue highlights the key diagnostic markers to distinguish between the different phases of damage to the kidneys. The review also points out the limitations of existing therapeutic interventions.

### National Food Security Mission *Socio-economic transformation*

October 2007. The National Food Security Mission was launched to align the needs of farmers to those of the public by considering agricultural input and market demands for farmers as well as food and nutritional security for the public. How has the Mission impacted the farmers?

Researchers from two ICAR institutions selected two states: UP where agriculture contributes more than 20% of the GDP and Karnataka where it is about 15%. Both states have a fair share of nutritional vulnerability. The researchers chose two districts each from both states, based on drought proneness, participation in the Mission's activities such as adoption of non-conventional crops including millets and pulses for nutritional security. The researchers then administered a detailed questionnaire to 240 farmers from the

four districts, including beneficiaries and non-beneficiaries of the National Food Security Mission.

The data, collected about one and half decades after the launch of the Mission, shows that it has indeed helped improve the income and status of the beneficiary farmers. But to raise India from its present position of 101 among 116 countries, in terms of the hunger index, there is a lot more to be done. Some re-engineering of the processes adopted by the Mission needs to be undertaken to make it more effective.

Read the Research Article on **page 976** for details.

### SARS-CoV-2 on Fruits, Vegetables

Infective droplets containing the virus that causes COVID-19 falling on fruits and vegetables can be picked up later by those who handle the items – a potential conduit for the virus to spread. So, from October 2021 to February 2022, when the pandemic was still raging in India, scientists from the ICAR-National Research Centre for Grapes monitored the virus on fruits and vegetables as well as on packaging materials and the gloves of the handlers.

From local markets in seven states of India, they collected samples of 15 fruits and 28 vegetables along with other related materials. Instead of the RT-PCR test, the standard method to detect the corona virus till recently, the researchers used the reverse-transcription loop-mediated isothermal amplification, an equally reliable, but simpler and less costly method. The kit for reverse-transcription loop-mediated isothermal amplification developed recently by the ICMR-National Institute of Virology came in handy for testing the surfaces of nearly 750 samples.

Read the research article on **page 938** and breathe easy. None of the samples had SARS-CoV-2.

Yet, it is not a negative result. The successful deployment of technology for rapid, reliable and economical test-

ing for SARS-CoV-2 will perhaps provide the impetus needed to create similar kits to test for other RNA viruses that cause diseases in humans, plants and animals.

### Plants, Productivity and Pollution *In the Eastern Gangetic Plains*

The cleaner the leaf's surface, the greater the chlorophyll content and the higher the productivity. But in a densely populated region like the Eastern Gangetic Plains, the pollution from vehicles, factories and biomass burning settle on the surface of leaves, impacting chlorophyll content and, thus, plant productivity. How resilient are the various species of trees and crops against this assault on their production systems?

A Research Article in this issue reports the results from Patna. The researchers selected five sites in and around Patna. They collected and analysed the leaves of seven trees, three cereals, six pulses and three oil seed species most common in the Eastern Gangetic Plains. They also collected data on ambient air pollutants. Between November 2020 and March 2021 there was higher than admissible particulate matter.

The air pollution tolerance index calculated based on the content of water, chlorophyll and ascorbic acid in leaves and the pH of leaf extracts suggests that *peepul* trees, maize, pigeon pea and safflower tolerate pollution better in their respective categories.

In terms of the anticipated performance index, which took into consideration the use value of plants, bougainvillea, black mustard and pea performed the worst.

People living in the Eastern Gangetic Plains might like to turn to **page 956** and read more on plants that will help us survive pollution.

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