

## In this issue

### Students, Salaries and Placements

#### *Case study from IIT Bombay*

Every year, the news media highlights case studies of the high salaries that IIT graduates garner in the job market. Generalisation from case studies, though an all too human tendency, is often belied by statistics. A General Article in this issue presents some statistics to clear some misconceptions.

The authors collected data from 2014 from the Training and Placement Cell of IIT. The data covered the sector, job profile and the 'package' offered during the placement of the graduates. The names of the graduates and their future employers are withheld. The analysis of the data provides a more realistic perspective on job prospects of IIT graduates.

The article on **page 155** also explores a related question about the number of IIT graduates taking up jobs not related to the core training they received in IIT. By analysing the results from a survey done to understand the job preferences of third, fourth and fifth year students of IIT Bombay, the authors provide insights into the social, economic and psychological factors that prompt IIT graduates to take up jobs not directly related to their field of study.

This in turn leads to recommendations on how to fine-tune the intake to various courses offered by the IIT, reorganising the courses to provide technical skills along with knowledge, improving the processes in the Training and Placement Cell and an institution-led survey across industries, to assess potential job profiles and salaries.

### Root and Tuber Crops

#### *Breeding and biofortification*

Sweet potato, cassava and yam quench the calorific needs of millions. But these roots and tubers do not satisfy the 'hidden' hunger for micronutrients such as vitamin A, iron and zinc. In this issue, researchers from the ICAR-Central Tuber

Crops Research Institute, Thiruvananthapuram provide an update on the status of research and development for the biofortification of these crops using breeding and genetic engineering to improve the nutritional value of the roots and tubers.

Read the Review Article on **page 169**.

### Synergy of Nanoparticles

#### *Composite outperforms components*

Bismuth vanadate nanoparticles have thermal and photochemical stability, a tunable band gap and potential antibacterial activity. Manganese cobalt oxide nanoparticles also have some antibacterial activity along with other useful electrochemical properties. A Research Article in this issue provides evidence to show that composites made from both have better antibacterial properties under visible light than the individual components. The authors propose a mechanism for this on **page 183**.

### Silver Leaf Whitefly

#### *Coriander, dill volatiles*

Silver leaf whitefly is a major pest of several crops, inflicting serious economic losses for farmers. Using insecticides to counter their attack harms the environment. Moreover, the pest has started showing resistance to many of the insecticides used.

There are crops that the pest does not destroy, such as dill and coriander. Indeed, many aromatic plants have volatiles that either repel pests or attract the natural predators of pests. Researchers from three ICAR organisations collaborated to quantify the silver leaf whitefly incidence when tomato is grown as a single crop as against tomato intercropped with either coriander or dill. Coriander as an intercrop reduced the incidence by more than 50% and dill reduced it by more than 30%.

Olfactometer bioassays using volatiles of tomato and coriander showed that whiteflies, though attracted to tomato

volatiles, tend to reduce visits and residence time in the presence of coriander volatiles. The effect with dill volatiles was lower.

The scientists used gas chromatography combined with mass spectrometry to identify the head volatiles from tomato, coriander and dill. The electrophysiological assays on whitefly antenna helped identify the specific volatiles that play a role in the phenomenon.

Thus, the Research article on **page 231** clarifies the mechanism through which crops are protected against insect pests by intercropping culinary aromatic plants, opening up the possibility of using the volatiles identified directly for crop protection.

### Wingless Imagoes of Termites

#### *Nutritional analysis*

More than 60 species of termites are considered to be edible and are consumed in different parts of the world. At night, from under street lights and other places, researchers from the University of Agricultural and Horticultural Sciences, Shivamogga collected the imagoes that emerge just after the first summer rains to analyse the nutritional qualities of termites.

All three species collected, after removing the wings, had high amounts of proteins. The most abundant termite imagoes were from the species, *Odontotermes obesus*. The researchers also quantified the micronutrients in this species. Essential micronutrients such as iron and zinc, they found, were abundant in the species.

If culture and social customs allow, tasty morsels of termites might help reduce protein and micronutrient deficiencies in the population.

Read the Research Communication on **page 257** in this issue.

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