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CORRESPONDENCE

Nomination raj

It is well known that whenever selections are to be made for senior management posts, awards, honours, admissions to professional bodies, etc., the procedures include nomination of the candidates by seniors in the professional discipline, institute or organization. Nominations to the Fellowships of Scientific Academies requires four signatures of Fellows and many times this is inconvenient, if not impossible, particularly in small institutions or cities. In many cases, a really deserving person can get left out for extraneous reasons or reasons other than merit For these reasons I think that the process of nomination of candidates should be dispensed with leaving the responsibility of applying to the aspirants themselves. To my knowledge, the final selections are always made after screening by experts, interviews, voting, etc , and this itself would be sufficient to ensure a fair and impartial selection.

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Bhatnagar Laureates

Regarding G. Prathap's article 'Geographical Distribution of Bhatnagar Laureates' in *Current Science*, 1993, 65, 575-576· I am rather surprised to see from Table 3 that the number of Bhatnagar Laureates from Bombay is only 3. Further it states, 'Bombay's performance is shockingly low – Bombay is breeding only businessmen, industrialists, lawyers, accountants and cricketers, anything but scientists'.

As far as I can see from the book quoted, there are as many as 28 Laureates who were able to earn this award, because of Institutions like Tata Institute of Fundamental Research, Bhabha Atomic Research Centre, Indian Institute of Technology and the University Department of Chemical Technology

If the classification is based on the place where one is born, Table 3 makes no meaning It is the laboratories which the Scientist has worked in that matter Otherwise it can give rise to mischievous interpretations

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Foraging decisions by plants

I read the article 'Foraging decisions by plants – Making a case for plant ethology' by Ganeshaiah and Uma Shaanker (*Current Science*, 1993, 65, 371) highlighting the discovery of plants exhibiting choice over food patches. Not only Darwin and Kalidas seem to have realized the ability of plants to exhibit movements, ordinary farmers also seem to have known for a long time about the ability of roots to grow towards fertilizer. About 45 years ago while a primary school student, I had noticed roots of tapioca cultivated on poorly fertilized soil growing towards a cow dung heap at a distance of almost one meter away. Based on this observation I cultivated a small plot of land with tapioca planted in rows about 5 feet apart in which fertilizer was introduced – after about eight weeks of planting stem cuttings – in furrows in the centre of the row, i e approximately 2½ feet away from the plant. At harvest the tapioca tubers from experimental plots were found to be average of approximately 2 feet long grown towards the fertilizer compared to an average of approximately only one foot long for tapioca tubers grown in the conventional manner. I was told that tapioca from the experimental plot had the highest yield per unit area ever produced in that farm Now that an Oxford don has discovered the ability of plants to forage for food, I wonder if it is possible to exploit this finding for the benefit of the farmer

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I have not read in a long time an 'opinion' article which is as interesting, thought-provoking and persuasive as the one by Ganeshaiah and Uma Shaanker in *Current Science* (1993, 65, 371). The authors have marshalled their arguments on the basis of earlier literature and explain that plants exhibit rivalry, mate choice, aggression and conflicts. This range of behaviour is richer than those of some aquatic, sessile animals. As a student of ethology myself, I do not see why Ganeshaiah or Uma Shaanker should be tentative, diffident or defensive in speaking of plant behaviour. I have myself made a list of 64 species of plants that show 'sleep' movements of leaves, petals, etc growing in the Madurai Kamaraj University campus, a copy of which I have sent to K N. Ganeshaiah Interestingly, the hesitation to admit that plants do behave much as animals is more prevalent among botanists than among zoologists

'Anthropomorphic' was a weapon word biologists used when it was erroneously believed that humans were very different from animals, therefore one used different terminologies when speaking of mice and men. Charles Darwin acted and wrote like a true biologist, which is not surprising since he had read thoroughly the writings of the botanist Hooker and geologist Lyell. Erwin Bunning (1906–90) liked to be called a biologist and so did his role model Wilhelm Pfeffer (1845–1920). In comparison, the biologists of today (especially of the botany–zoology varieties) appear to be an insecure and demoralized lot. These authors are only making a plea, a case for plant ethology, and suggesting newer ways of studying the biology of plants. And the sociobiological methodology in studying plants appears to me to be more rigorous than that of botanists of antiquity. Right on Ganeshaiah and Uma Shaanker are welcome to the field of ethology – a house of lost causes – and add to its variety and richness.

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SCIENTIFIC CORRESPONDENCE

Regeneration potential of hypocotyl-derived long-term callus cultures in groundnut (*Arachis hypogaea* L.) cv TMV-2

Plant tissue culture, one of the important aspects of biotechnological approaches, is of much importance as it helps develop improved crops faster than conventional breeding. Application of different aspects of *in vitro* techniques – callus, cell, protoplast, anther and meristem cultures – in crop improvement depends upon somatic embryogenic capacity of callus at different subcultures. A fairly good number of crops are developed as somaclones obtained from long term callus cultures.

Groundnut (*Arachis hypogaea* L.), an important oil-seed crop, is susceptible to pests, diseases, salinity and aridity and hence yield levels are low. Improvement of this crop is time-consuming and arduous. Application of tissue culture in groundnut depends on regeneration of plantlets from long term callus cultures, which enables selections under selection pressure. Earlier reports on regeneration are largely confined to the development of plantlets directly from embryo axes and cotyledons[1], immature embryos[2,3] shoot tips[4] and from intervening callus[5], besides differences in varietal responses. However, there are no reports on regeneration from long term hypocotyl-derived callus cultures, which is reported here.

Hypocotyl segments from aseptically germinated seedlings of *A. hypogaea* L. cv TMV-2 were planted on MS[5] medium supplemented with NAA (2 mg/l) and kinetin (0.25 mg/l) and incubated at 26 ± 3°C in light (16 h). Callus obtained was subcultured on the same medium, every 30–35 days. After four subcultures, the callus (100 mg) was transferred to MS medium containing IAA (0.25 mg/l) and kinetin (2.5 mg/l) and incubated as described above.

There was development of compact masses of green tissue in 2–3 cultures out of 10. Embryoids and small plantlets appeared 20–25 days after inoculation (Figure 1). Subsequently, plantlets became well developed (Figure 2) and visible on the compact tissue. However, on subsequent transfer of compact tissues or incipient plantlets to the same medium, there was a tendency for rapid cell proliferation, rather than regeneration

Figure 1. Green compact mass of groundnut callus

Figure 2. Plantlets of groundnut on compact callus