

## BOOK REVIEWS

otoliths in human ears and called statoliths are found to be present in the root cap cells as well as in the endodermis cells of the stem. These are the gravity receptors and their displacement causes a plant to change its direction of growth. John Kiss used high-gradient magnetic field that stimulated gravity, and induced migration of statoliths, that indeed affected the direction of bending of the roots. He predicted that in space the statoliths will not move as there is no effect of gravity. In the space shuttle too, no gravitropic bending of roots was detected.

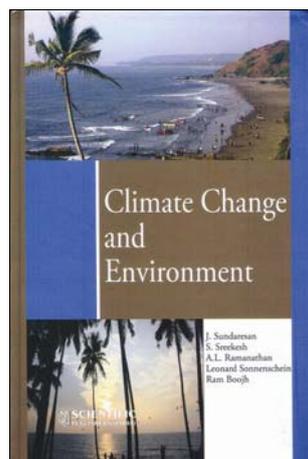
In the last part of the book, it has been shown that similar to human beings, but in a limited manner and through a different mechanism, plants also can form, store and retrieve memory. In *Arabidopsis thaliana* epigenetic mechanism of cellular memory regarding vernalization is discussed. Many plants require getting a cold period gap before flowering is induced. Whether a plant has or has not met with this cold period is remembered by it and used further to induce flowering. This involves the 'switch on' of the *FLC* gene for production of inhibitor protein. This stops the plant from flowering till it meets the cold period. Vernalization switches the gene off and remembering this, the plant begins to produce flowers. The process of production of inhibitory protein by *FLC* gene is due to epigenetic effect involving heritable genomic rearrangement; the exact mechanism is not yet fully understood.

While concluding the discussion on the plant senses, the author mentions that plants may not be intelligent as humans, but they are certainly aware of their surroundings. Though humans and plants share similar abilities to sense the world

around them, the former are superior as they can render the sensory inputs as an emotional landscape. This is so because they have evolved along different paths.

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**Climate Change and Environment.** J. Sundaresan *et al.* (eds), Scientific Publishers (India), 5A New Pati Road, P.O. Box 91, Jodhpur 342 001. 2013. xiii + 286 pp. Price: Rs 1950.

This edited volume is a collaborative effort of many researchers working in the area of global change. It has 25 contributed articles in a wide variety of subjects ranging from climate change at local or regional levels to ecosanitation.

Papers are grouped under five subheadings: Climate change science (3), Changing weather (5), Climate change science and biological system (7), Physico-chemical aspects of environmental changes (6), Mitigation and adaptation climate change (4). The scientific rigour of the articles too, likewise, has wide variation. For example, the article dealing with Chennai's regional temperature variation and its correlation with sunspot numbers and CO<sub>2</sub> emission concludes on temperature trends without testing their statistical significance. The authors ignore the facts that: (i) datasets less than 30 years long are seldom useful in documenting clear trends and assigning causes, and (ii) CO<sub>2</sub> is a well-mixed gas in the Earth's atmosphere, and its radiative effects on climate are as global as are the effects of sunspots. Similar lack of scientific rigour is exemplified by several papers under the subheading 'Changing weather'. This is compensated to some extent by some good papers based on GCM simulations and data analysis. The editors could have done better with a thorough international review of the articles, but probably decided against it because then they would have to compromise on the breadth of the subjects the book deals with. This book might be useful to young researchers interested in the field of global change to choose where they need to put in more efforts.

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