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Dominance in primates

Animals living in a communal group practice a social hierarchy that dictates interactions among individual members in the group. At least three types of hierarchies—despotism, egalitarianism and complete linearity—are well known. Singh *et al.* (page 709) review three types of quantitative measures employed by previous researchers to describe the strength of dominance of hierarchy. The authors use experimental data from a group of Japanese macaques, housed in an outdoor colony at the Bucknell University, Pennsylvania (USA), to develop a modified procedure to rank individuals on an interval scale.

Calcium in cells

Chlortetracycline (CTC) has been used as a fluorescent dye for detecting cellular calcium. Jacob *et al.* (page 671) suggest that the changes in pH cause alteration of CTC-labelled intracellular calcium. Estimation of pH is accordingly important in such experiments. The ionophore nigericin has been used to equilibrate pH between extra-cellular medium and intracellular components. This trick enables the detection of levels of stored calcium at pH 7.2 and pH 6.2.

Neem gold

Neem gold is a commercially available preparation containing extracts from kernels of neem (*Azadirachta indica*), the primary active ingredient being azadirachtin. It is evaluated for its larvicidal effects on the tobacco armyworm *Spodoptera litura*. Artificial diet containing appropriate quantities of Neem gold is fed to last instar larvae of *S. litura* to observe its effect on haemogram and the ultrastructure of haemocytes studied

with SEM as well as TEM. It is found that haemolymph volume is reduced, and severe alterations and distortions in the structure of plasmatocytes and granular haemocytes are also observed. Sharma *et al.* (page 690) believe that this study will help understand cellular defence mechanisms in insects to improve the performance of insecticides.

Heavy metal phytotoxicity

Presence of Cr(VI), Cu(II) and Zn(II) ions in solution causes a decrease in chlorophyll content with a concomitant increase in carotenoid content in moss (*Taxithellium* sp.) under continuous light. An increase in the level of proline is also observed. The activity of superoxide dismutase increases while the level of catalase and peroxidase decreases. S. K. Panda (page 631) reports these observations in the moss *Taxithellium* sp. in response to metal toxicity.

Lizard: Prodigality of reproduction

The garden lizard, *Calotes versicolor*, is ubiquitously found in India. It shows polyautochrophy, ovulating many eggs from both the ovaries. Shanbhag (page 646) discusses on the survival value and evolution of viviparity in garden lizard.



Quasielastic neutron scattering

Mitra and Mukhopadhyay (page 653) describe the features of quasi-elastic neutron scattering (QENS) spectrometer that has been built and commissioned at the Dhruva reactor at Trombay. This system is used to study a variety of molecular solids, zeolites, monolayer nanosized metal clusters, etc.



Lichens in Bangalore

The 'Garden City' Bangalore is sometimes called the science capital of India. With a population now reaching seven million, Bangalore is like any other city, with the associated problems of housing, poverty and other features of urban development. These surroundings also maintain mutualistic association of fungi and algae – the lichens – in its botanic gardens, and in some natural habitats. The Lalbagh Garden, and the Indian Institute of Science, Bangalore harbour at least 30 different species of lichens belonging to 20 genera and 15 families. Nayaka *et al.* (page 674) document the distribution of lichen varieties in various locations around the Bangalore city.

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