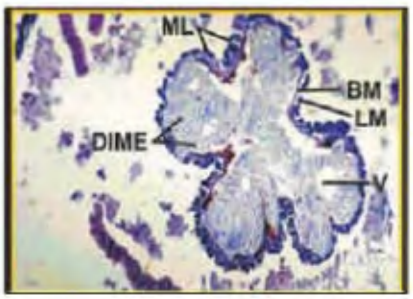
In this issue

Pest control, pathogenic virus and insect tissues

Over-reliance on pesticides has aggravated insect problems. With the advent of biotechnology and the beginning of ecologically friendly policies for pest control, microbial pesticides have achieved immense importance in plant protection programmes. Amongst microbial pesticides, Nuclear Polyhydrosis Virus (NPV) specific for *Spodoptera litura* (*Fabricus*) was targeted against the army worm.

The efficacy of viral biopesticide was adjudged by Prasad and Wadhwani (**page 803**) by observing per cent mortality and the results were further supplemented by studying the mode of action of the virus on various tissues of the host.



Various viral pathological symptoms such as flaccid and swollen body, stumpy legs and shrinkage of body segments at the midgut area were observed. Histopathological studies revealed that the midgut epithelium is the principal target tissue for action of NPV. Extensive tissue destruction occurred in the body and epithelium of the insect. The tissues either lost their identity or became highly disorganized. The virus was found scattered in different tissues and deposited heavily on the body wall, suggesting the spread of infection in almost all the tissues of the larvae.

Potential applications of InSAR coherence

SAR Interferometry (InSAR) utilizes two complex SAR images acquired over the same area from slightly different sensor positions. This technique is popularly used for DEM generation and studies related to surface movement. It is interesting to note that InSAR has huge potential in many less explored areas. Srivastava *et al.* (**page 783**) have demonstrated a few of these applications by exploiting interferometric coherence, which is defined as normalized complex cross-correlation of both complex signals. InSAR coherence is inversely related to the magnitude of random dislocation of scatterers between two passes. Demonstrated applications include delineation of surface water extent, delineation and density mapping of forested areas, detection of human settlement and crop height estimation. They have reported that surface water results in very low value of InSAR coherence since it cannot remain stable between two SAR acquisitions. In contrast, human settlements being stable targets yield high value of InSAR coherence. They have also reported that InSAR coherence decreases with increase in forest density or increase in crop height. This study suggests that synergic use of SAR backscatter with InSAR coherence significantly enhances the sensitivity of a SAR system as a whole for various earth resources applications.

Fluorescent labelling of nucleosides and oligonucleotides

Two highly fluorescent compounds, viz. 6-[6-isobutyrylamino-1,3-dioxo-1H, 3H-benzo[de]isoquinolin-2-yl]-hexanoic acid (**1**) and 6-[6-dimethylamino-1,3-dioxo-1H, 3H-benzo[de]isoquinolin-2-yl]-hexanoic acid (**2**) have been synthesized by Singh and Singh (**page 836**) and attached on to nucleosides, like uridine, 2′-deoxyuridine and 2′-deoxycytidine using suitable linkers. These labelled nucleosides were converted into their respective amidites and incorporated into synthesis of labelled oligonucleotides, like d(U*GTGGGTTAAGA) and d(C*CTTAACCCACT) on LCAA-CPG solid support following the standard protocols.

The fluorescence spectra of fluorophores **1** and **2**, excited at 397 and 368 nm, respectively, have been recorded in 1M solution of aq NaCl, $MgSO_4$, $NaHCO_3$ and KCl in the range of 350–600 nm. The increased fluorescence of these molecules in inorganic media, suggested that these fluorophores can be highly suitable for use in biological systems. Furthermore, the labelled oligonucleotides also showed appreciable fluorescence at 0.03 OD concentration.