In this issue

Plant mortality in the intertidal mangrove swamps

The earthquake-related phenomena, including those like landslides or tsunamis that are triggered by earthquakes act fast and cause almost immediate death and destruction. Ray and Acharyya (**page 218**) report that there may be some geological and consequent ecological phenomena of change whose impacts are so sluggish that they remain imperceptible even two to three years after the earthquake. Finally the dynamics of the processes cross a threshold and mature to disastrous proportions. The authors discuss

one such phenomenon of widespread plant mortality in the intertidal mangrove swamps because of static land-level changes in North Andaman caused by the December 2004 Sumatra–Andaman earthquake. On the basis of their initial studies within weeks after the earthquake they had predicted that, the intertidal forests that were perched above the high tide level because of coastal uplift associated with the earthquake, are destined to perish within few years. The flora of such uplifted domains would struggle but finally succumb to the desiccation and probably depletion of salinity caused due to the uplift to supratidal levels. The authors revisit to the area four years later to monitor the changes has confirmed the predicted plant mortality that emerges as an ecological disaster due to devastation of large stretches of mangrove forests in the tidal swamps along the remote western coast of North Andaman. This study also brings to focus the need to monitor the change in the earthquake-devastated areas, particularly in the case of earthquakes associated with static land-level changes in coastal tracts.

Polarimetric properties of lunar surface

Pursuit of resources useful for lunar habitation is among the challenging priorities of scientific community since long. In this quest, possibility of water ice in the polar regions of the moon has been inferred from the earlier radar observations using earth-based radar and also by Clementine bistatic radar observations. However, water ice signatures from radar were also observed in non-polar region. Therefore, the issue of water ice in the polar cold traps of the Moon remained controversial. In view of this, there was always a requirement of systematic radar observations of polar region. In view of such requirements, first orbital imaging radar known as Mini-SAR was flown on *Chandrayaan-1* mission on 22 October 2008 with an objective to collect data in all the permanently dark areas near the lunar poles. This would be helpful in detecting presence of water ice in the permanently shadowed regions on the lunar poles up to a depth of a few meters. The Mini-SAR sensor was operated at S-band (2.38 GHz frequency) with transmission in left circular polarization, and reception in linear horizontal and vertical polarizations. The ratio of received power from same sense (right circular) to the opposite sense (left circular), or vice-versa, is called radar circular polarization ratio (CPR). Most of the lunar surface has low CPR, which is considered to be normal signal. Some surfaces like ice embedded in regolith or below the regolith tend to have high CPR, which is reflected in polar region. Due to permanently under sun shadow, these areas are very cold and water ice is stable essentially indefinitely. It is hypothesized that volatile material including water ice could be trapped in such low temperature region. The study on polarimetric scattering properties of lunar surface presented in this issue (**page 159**) brings out methodology and techniques for planetary ice detection in the polar cold-traps of Moon using Mini-SAR data. It was observed that anomalous circular polarization ratio, which is an indicator for planetary water–ice deposits inside some of the polar craters believed to be in permanently shadowed region of Moon. Other polarimetric parameters were also studied and an ambiguity associated with high CPR values due to surface roughness effect was also studied. The article has brought out initial results on the possible existence of water ice in the lunar polar region.

Biocompatible microemulsion systems for drug encapsulation and delivery

Development and characterization of drug delivery systems has become a thrust area in pharmaceutical research during the last decade. The concept of drug delivery system has emerged to minimize the toxic side effects of drugs, to improve their therapeutic index, and to expand their mode of administration. The absorption of drugs after their *in vivo* administration could be enhanced by encapsulating the drugs in aqueous-based delivery systems. Encapsulation of drugs in delivery systems offers protection to the drugs from degradation effect of enzymes also. Colloidal systems with their hydrophobic and hydrophilic microdomains can act as good drug delivery systems as both polar and non-polar drugs could be solubilized and stabilized in these systems. Microemulsions are macroscopically homogeneous but microscopically heterogeneous nanoscale dispersed systems of oil and water.

Syamasri Gupta (**page 174**) reviews different biocompatible microemulsion systems, their composition, nature of components, their microstructure and rheology, and restrictions on the choice of the excipients. Pharmaceutical applications require certain criteria to be fulfilled, such as tolerance to body electrolytes, stability over a certain temperature range, low viscosity, small size, biocompatibility and biodegradability. The review discusses an interesting group of vegetable oil-based ternary and psudoternary systems of corn oil, cottonseed oil, orange oil, peppermint oil, clove oil in mixed and pure state which could be useful and prospective drug delivery systems.

Different microemulsion systems which are useful for delivery through different routes such as subcutaneous, oral, intravenous, nasal, ophthalmic, etc. are also described.