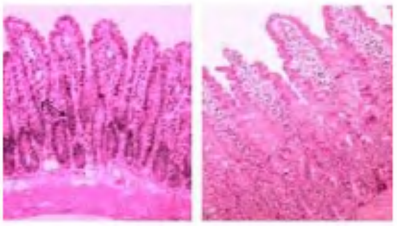
In this issue

Antidiabetic activity of *Aloe vera*

Ayesha Noor *et al*. have carried out (**page 1070**) a study of the antidiabetic activity of standardized *Aloe vera* extract fed to streptozotocin-induced diabetic rats, with histological evidences to understand the mechanism. In diabetic induced rats fed with *Aloe vera* (300 mg/kg body weight) the fasting plasma glucose (FPG) levels were reduced to normal and body weight was found to be increased. In the histological sections of pancreas of diabetic rats the islets were shrunken and reduced. After feeding



with *Aloe vera*, the islets were comparable to normal rats. In liver, the changes caused after induction of diabetes are granular cytoplasm, dilated sinusoids, shrunken nuclei and inflammation, which was reduced after feeding with *Aloe vera*. Excess proliferation of epithelium in small intestine was observed in diabetic rats, which was reduced after feeding with *Aloe vera* to diabetic rats. No significant changes were observed with regard to kidney and stomach sections. The administration of *Aloe vera* extract lowers the FPG levels to normal levels in diabetic induced rats and has regenerating effect on the pancreas, liver and small intestine of diabetic induced rats.

Delineation of concealed lineaments

In hard rock areas, the nature and extent of weathering vary considerably, depending on the degree of fractures at depth and the geomorphological features. Often these fractured zones are found to be good groundwater potential zones. Hence, in view of groundwater exploration, identification and analysis of fractures and concealed lineaments are crucial in hard rock terrains. Conventionally, apparent resistivity values are used to detect such underground structures. The true resistivity values are also used and intern resistivity contour map for different depths are prepared from Electrical Resistivity Imaging (ERI) data indicating different resistivity zones, which could be used to delineate low resistivity zones representing concealed lineament. One such map is obtained where the concealed lineament lies in NE–SW direction at the depth of 12.8 m and extended up to 30 m at Ghattupal village, Wailapalli watershed of Andhra Pradesh, India. There is no surface signature of this buried lineament. This underground lineament with favourable hydrogeological conditions allows large-scale migration of groundwater in granitic terrain. The existence of water-bearing concealed lineament and the tiny fractures located below this lineament are confirmed by the EC-logs. It shows that the lineament is extended up to 30 m depth and there are also tiny fractures at 42 and 49 m depths. Therefore, this lineament can be used as suitable sites for the drilling new boreholes for sustainable water supply. See **page 1023**.

Spiral galaxies and dark matter

Initially called ‘missing mass’ in the 1930s when Fritz Zwicky thought there was insufficient mass to provide the gravity needed in galaxy clusters to balance the measured speeds, and renamed ‘missing light’ four decades later, when it was realized that the clusters are relaxed structures most likely in or near virial equilibrium, so that it was light that was not observed while the gravity was felt, the presence of ‘dark matter’ was soon inferred on all scales from individual galaxies to groups to clusters. In the solar system, Neptune was found at the spot predicted from anomalous motion of Uranus, while the anomalous part of the precession of Mercury did not lead to Vulcan, rather it was explained by general relativity, Einstein’s improvement over Newton of the description of gravity. Rotation about the centre of a spiral galaxy, in analogy with planets moving around the Sun, has been used to get the distribution of mass inside the orbits of test particles. Assuming that the sums are done right, the variation of circular speed with galactocentric distance, called the ‘rotation curve’, gives the distribution of mass to provide the gravity needed to hold the test particles in orbits. On **page 986**, Banhatti presents the current status of these observations and calculations for disk galaxy rotation curves, and the inferred dark matter, for the Milky Way as well as other spiral galaxies.