

# Foliar epidermal studies in some clerodendrum species (Verbenaceae)

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## SUMMARY

The five species of *Clerodendrum* have been investigated for epidermal structure. The walls of the epidermal cells are sinuous. The abaxial epidermis shows more sinuous nature in same species. The cuticular striations are noted in *C. inerme* on lower epidermis. The leaves are hypostomatic but in *C. philippinum* is amphistomatic. The stomata are present on both the surfaces. However, the stomatal number is less on the adaxial surface. The stomata are mostly anomocytic. Anisocytic, diacytic and tetracytic types also occur. The diacytic stomata are dominant in *C. serratum*. Both glandular trichomes are sessile and occur in the form of scales. In *C. aculeatum*, variation is seen in the structure of scales.

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The genus *Clerodendrum*, belonging to the tribe Vitaceae of family verbenaceae. Anatomical features play an increasingly important role in the formulation of natural phenetic groups (Davis and Heywood, 1963). Epidermal and stomatal parameters are widely employed as taxonomic evidence (Wilkinson, 1979, Vaikos, 1987, Kannbiran and Ramassamy, 1988, Yashodhara and Shanmukha. Rao, 1994). The structure of leaf including epidermis on different genera of the family have been worked out on structure and ontogeny of stomata on vegetative and floral organs, Shah and Mathew (1982) have been worked on Trichomes in some species of *Cleroderum*. Rao *et al.* (1988) worked on Trichomes, distributional patterns and their significance in *Clerodenodrum*. Rao and Ramayya (1985) have been worked on taxonomic significance of laminar stomatal distribution in *Clerodendrum*. This paper present a detailed account of epidermis in five species of *Clerodendrum*.

## MATERIALS AND METHODS

The plant material of *Cleroderum aculeatum*, *C. interm* (L) Gaertn, *C. philippinum* Schuer (L) *C. serratlem* (L) Moon, *C. splenderns* G. Don. were collected from Botanical garden of Dr. B.A.M.U., Aurangabad and Gautala and preserved in 70% alcohol. The peels for epidermal studies were taken from fresh and preserved material and also from herbarium specimens. The chemical methods were used for the separation of peels. Diluted nitric acid and chromic acid (5-10%) used in different proportions gave best results. The peels were stained in safranin (1%) or aniline blue and mounted in glycerine and made semipermanant by rings with rubber solution. Figures were drawn using camera lucida.

## RESULTS AND DISCUSSION

The epidermal characters like size, shape, cell walls, cuticular striations, stomatal type, size and variations in the trichomes were examined in the five species of *Clerodendrum*. The epidermal cells on both the surfaces in the intercostal zones of the leaves generally polygonal, uneven shaped with straight, undulated or wavy walls. They were polygonal or uneven shaped with straight walls on both the surfaces in *C. inerme* (Fig. 3, 4). In *C. aculeatum* the cell walls of adaxial epidermis are straight of abaxial ones are wavy (Fig. 1). They may be wavy or sinuous on both the surfaces in remaining species. The cell walls of abaxial epidermis are more sinous in *C. philippinum* and *C. splendens* (Fig. 6, 10). The epidermal

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