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Foliar epidermal structure in *Petrea volubilis* L. (Verbenaceae)

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SUMMARY

Observations on the leaf epidermal structure of *Petrea volubilies* L., is presented . The stomata are anomocytic. The cuticular papillae occur on epidermal cells. Surface ornamentation of epidermis is considered as an ecological adaptation.

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Key words : *Petrea volubilies* L., Epidermal structure, Cuticular papillae

Epidermal characters have, of late, been found to be of considerable significance in morphological, taxanomic, phylogenetic and pharmacognostic studies.

The present observations on the leaf epidermal structures of the *Petrea volubilis* L. is presented. The leaf is amphistomatic. The stomata are anomocytic .The epidermal cells are polygonal, short or rectangular and longitudinally elongated. The cell wall are straight or sinuous. The cuticular papillae occur on epidermal cells surface ornamentation of epidermis is considered as an ecological adaptation.

The leaf material of *Petrea volubilies* was obtained from Botanical Garden of Dr.Babasaheb Ambedkar Marathwada University, Aurangabad. The epidermal peels from the leaves were removed. These were stained in aqueous safranin or Delafield's haematoxylin and mounted in glycerine.

The leaves are dorsiventral and amphistomatic. The adaxial epidermis is of large barral shaped cells or squarish shaped. The outer wall is thick.The cells of abaxial epidermis are comparatively smaller.The cuticle is thick on the adaxial surface. The cuticular papillae occur on many cells at both the epidermis (Fig. 1, 2) .The stomata are more on lower surface. The guard cells are with outer and inner ledges (Fig. 4). The mesophyll is differentiated into generally a single layered palisade and broad spongy tissue. The cells of spongy tissue are loosely arranged. The vascular bundles are many, collateral and xylem oriented towards the upper surface. The bundle sheath is sclerenchymatous (Fig. 3). The midrib region is lobed at abaxial side and has a distinct groove at adaxial side. Hypodermis is of few layered collenchymas. It is followed by parenchymatous cortex. A large circular bundle is located in the centre,which is surrounded by sclerenchymatous tissue. The development of cuticular papillae and ridges on the leaf surface is very interesting and may be considered as ecological adaptation (Fig. 5). (Bangar, 2002). Pant and Kidwai (1966) recorded more or less similar cuticular papillae in the Araceae. In the Pandanaceae, the papillae are a development of the epidermal cells with rather prominent cuticular projections (Tomlinson, 1965). In *Ophiopogon intermedius* of Liliaceae (Vaikos,1982, 1987) (Bahadur *et al.*,1984; Gopal

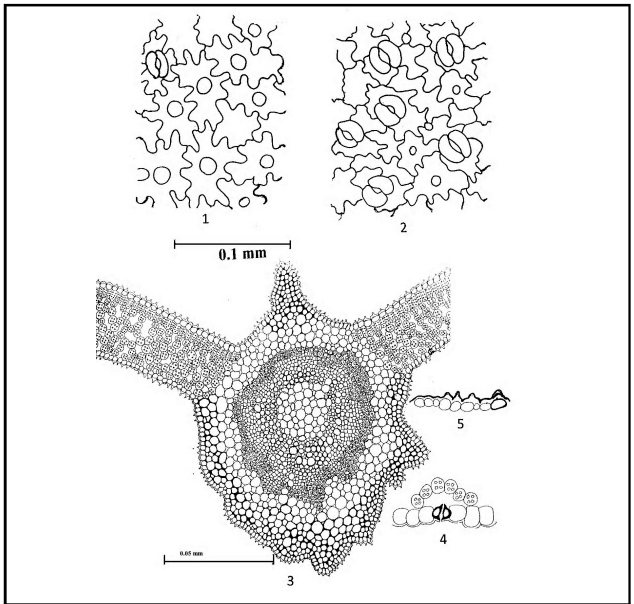

Fig. 1-5: 1-2.Epidermis;1,adaxial 2,abaxial 3,T.S.of leaf with midrib. 4, Stomata with ledges, 5. Papillose epidermis

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and Shah, 1970; Rama *et al*., 1983; Shaha and Gopal, 1970; Stebbins and Khush, 1961) Epidermal parameters are found to be of taxonomic signicance. It is interesting to note that certain of epidermal features show variations even amongst species of a genus, e.g., *watsonia* (Vaikos, 1987).

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