THE ANACARDIACEAE
REVIEW OF LITERATURE
Studies on the anatomy of the vegetative organs of the anacardiaceous plants have been summed up by Solereeder (1908) and Metcalfe and Chalk (1950).

According to Haberlandt (1914), in the majority of the flowering plants, the secretory passages form a branched anastomosing system of tubes pervading the whole plant body. In plants of Anacardiaceae (Rhus cotinus, R. suaveolens, R. glauca etc.) the leptome-strands contain secretory passages. He further states that these passages are often furnished with protective sheaths, which may be compared to those of endodermal layers that are principally mechanical in function. The oil-passage that traverse the primary leptome of Rhus cotinus are encased in a double sheath of cells which are, however, thin-walled and flattened.

The structure of secretory ducts in this family has been studied by McNair (1918), Venning (1948), Varghese and Fundir (1964), Fahn (1974), Fahn and Evert (1974), Fahn and Joel (1976), Joel (1981), Joel and Fahn (1980a, b, c), Nair et al. (1983) and Venkaiah and Shah (1984). The development is of schizogenous or lysigenous type. The duct system is discontinuous or continuous and shows ramification and anastomosis. The lysigenous development of the duct is observed from schizogenous ducts in stems and leaves of Spondias and Mangifera (Venning, 1948) and
R. diversiloba (McNair, 1918). According to Venning (1948),
the duct development in the family varies from species to
species and among different plant organs, or even different
tissues of the same organ as reported in Lannea (Venkaiah
and Shah, 1984). Joel and Fahn (1980 a, b) have pointed out
the chief differences between lysigenous and schizogenous
ducts and indicate the possible sites of synthesis of
resinous material in M. indica.

Venkaiah (1985) has recorded the histochemical
localization of amylase in the gum-resin ducts in the stem
of Anacardium occidentale.

In his anatomical studies on the family, Goris (1910)
has recorded the hypoderm as variable in structure in
Mangifera, Gluta and Melanorrhoea. Earlier, Courchet
(1907) reported the occurrence of pseudohypoderm of divided
epidermal cells in Protorhus. Dubard and Dop (1907)
describe cluster crystals in the palisade layer of Protorhus.
McNair (1921) has studied the anatomy of Rhus diversiloba
where the petiole exhibits a circle of numerous vascular
bundles and the secretory canals.

During the studies on ecological foliar anatomy of
various Indian plants, D'Almeida and Desai (1942) have
concluded that the internal structure of the leaf in Lannea,
Semecarpus and Anacardium is xeromorphic.
In their survey on the stomatal ledges in angiosperms, Rajagopal and Ramayya (1979) have described the Anacardiaceae under group I with guard cells ledged. In an earlier contribution, Rajagopal (1979) has indicated that the leaves are hypostomatic in this family, while stomata are irregularly oriented and mostly occur in the intercostal region.

Wilkinson (1983) has presented an exhaustive account on the variations of anatomical characters and venation of leaves in the species of *Gluta* and its taxonomic significance. The study reveals two major groups of species which reflect the original groups of *Gluta* L. and *Melanorrhoea* and a smaller group showing intermediate or an admixture of characters.

Barnell (1939) has described the formation of abscission layer in the fruit stalk of *Mangifera indica*. Mukherjee (1949) has made some observations on the anatomical structure of the inflorescence axis of *Mangifera* and concluded that this genus is a homogenous entity. Cutler (1978) in her account has mentioned few interesting anatomical features of *Mangifera* and *Pistacia*.

Heimsch (1940) has studied the secondary xylem and pollen morphology in the *Rhus* complex in which the species
are grouped into six genera. In a later contribution Heimsch (1942) has described the woods in Mangiferae, Spondiae, Rhoideae, Semecarpae and Dobineae and concluded that there are no characters or combinations of characters that serve to differentiate one group from the other. Instead there do appear certain trends in these groups. On the basis of anatomical characteristics, he considers that the Anacardiaceae closely resemble the Burseraceae. Mitra (1981) has made a histotaxonomical study of the tribe Mangiferae and noted the similarity in the wood anatomy of the genera. Gomes (1984) has described the wood structure in Sclerocarya.

According to Ghouse et al. (1979) the pattern of sclerenchyma distribution in the secondary phloem is worthy of attention for systematic considerations. They have indicated the occurrence of such mechanical tissue in Mangifera indica which is restricted to the non-conducting phloem only. In an earlier contribution Ghouse and Siddiqui (1976) have demonstrated the cell length variation in phloem fibres in this plant. Further studies on this genus are on the size variations of tracheary elements across the tree (Ghouse et al., 1985). The changes in dimension have been found consistent and gradual but with occasional fluctuations of minor magnitude.
Gibson (1981) has studied the vegetative anatomy of leaf, stem and root of *Pachycormus* and demonstrates the highly specialized nature of the wood and the presence of schizogenous resin ducts in various organs. This genus has the thickest bark known in the family which is mainly produced as annual layers of secondary phloem marked by a ring of secretory ducts, each surrounded by tannin cells.