The vegetative anatomy of 11 species with two varieties thereof and 10 genera of Sapindaceae, and 12 species of 9 genera belonging to the Anacardiaceae is studied.

The leaves are alternate and exstipulate. The node is trilacunar and three-traced in the majority of the plants with a single genus in each family having a unilacunar one-traced condition. However, multilacunar multi-traced node is characteristic only of *Semecarpus* of Anacardiaceae. The unilacunar and multilacunar nodes are considered to be derived from the predominant trilacunar one. These two nodal types are described for the first time for both the families.

The anatomy of the petiole/petiolule shows varied distribution of the collenchymatous and sclerenchymatous mechanical tissues. The distribution and organisation of the vascular tissue and the occurrence of resin ducts only in Anacardiaceae are significant. The calcium oxalate crystals are not uncommon.

In Sapindaceae, collenchyma occurs in the form of patches or as a ring in the hypodermal region. The amount of collenchyma is comparatively more on the abaxial or adaxial sides of the petiole/petiolule in many plants. In *Cupania* and *Sanindus*, cortical sclereids function as
additional peripheral mechanical tissue. In *Lepisanthes* and *Harpullia* where hypodermal mechanical tissue is absent, the mechanical strength appears to be chiefly provided by the thick-walled epidermis and the thick cuticle. In most of the plants a sclerenchymatous ring encloses the vascular tissue. The vascular bundles remain distinct or form a continuous cylinder. In *Dodonaea*, the number of vascular bundles is three, the median one large and abaxially located in the petiole. *Cardiospermum* has four vascular bundles.

In anacardiaceous plants collenchymatous tissue occurs in the hypodermal or cortical region. It may be absent as in *Mangifera*, *Anacardium* etc. Sclerenchymatous tissue develops a cylinder or remains capped to each individual vascular bundle as in *Anacardium* and *Holigarna*. It may be absent in *Lannea* and *Spondias*. The vascular bundles are discrete or interconnected to develop a cylinder. The phloem is always associated with characteristic schizogenous resin ducts. In many cases, the resin ducts are encased by phloic sclerenchyma. The resin ducts may also be present in the cortex and/or pith of the petiole/petiolule in *Holigarna*, *Anacardium*.

The leaf anatomy reveals the dorsiventrality of the organ in all the plants except *Schinus* (Anacardiaceae). In the latter plant the leaf is isobilateral. The adaxial
epidermal cells are always larger with thick cuticle. The leaves are mostly hypostomatic. The guard cells have ledges in a few of the plants of Anacardiaceae.

The mesophyll is differentiated into one- or two-
2-layered upper palisade and lower spongy tissue of varied layers. A single-layered parenchymatous hypoderm occurs in Cupania (Sapindaceae). In Mangifera and Holigarna (Anacardiaceae) the leaf hypoderm is many-layered. Semecarpus and Holigarna (Anacardiaceae) develop papillose epidermis on abaxial surface.

In many plants, sclerenchymatous fibers extend through the mesophyll. Bundles sheath extensions are observed in a few plants of Anacardiaceae. Most of the mesophyll cells are tanniniferous. In anacardiaceous plants, the resin ducts also occur in the mesophyll.

The venation pattern is of the pinnate, camptodromous-eucamptodromous type in majority of the plants. In Cardiospermum (Sapindaceae) it is craspedodromous while in Spondias (Anacardiaceae), it is camptodromous-brochidodromous. The marginal ultimate venation is incomplete or fimbriate. The areole development is imperfect or perfect. Tracheary idioblasts of varying shape and size occur in many plants. The occurrence of transfusion tracheids only in Cardiospermum,
Dodonaea, Erioglossum and Allophyllus of Sapindaceae is interesting.

The epidermal cells are mostly polygonal or irregular with anticlinal walls straight or undulating. Cuticular striations occur in many plants and these may be on both the surfaces of the leaf or restricted to only one surface. The strands of cuticle are characteristic on adaxial surface in Cardiospermum. Few or many cells do not develop such striations on abaxial surface in Erioglossum and Cupania respectively.

The leaves are materially hypostomatic, although morphologically amphistomatic. Anomocytic, anisocytic, tetracytic and actinocytic stomata occur in plants of both families. In Erioglossum (Sapindaceae), apparently cycloctytic stomata also occur. More than one type of stomata on the same surface of the organ is recorded in a few plants. Various stomatal anomalies are seen.

Glandular and non-glandular trichomes, and scales are of various types. The scales are characteristic in Dodonaea and Filicium (Sapindaceae), and Mangifera and Holigarna (Anacardiaceae). Harpullia of the former family and Lannea of the latter family have stellate hairs. The glandular hairs are variable in most of the plants.
A comprehensive discussion of the taxonomic and phylogenetic aspects is attempted in the light of the present study and in reference to earlier literature. It is evident that the Sapindaceae and Anacardiaceae do share certain characters that enable one to align them. There appears more in common in between them that leads one to infer that they are better considered as parallel derivatives from a common or similar ancestral stock/s. A discussion on the very closely related families of Sapindaceae and Anacardiaceae is attempted in regard to their taxonomic alignment. The taxonomic position of the genus *Filicium* within the Sapindaceae is justified on the basis of the present study.

A key based on the anatomical features for the delineation of the genera and species of Sapindaceae and Anacardiaceae is presented.