The vegetative anatomy on 22 species distributed in six genera of the family Lythraceae is investigated.

The vessel elements in stems of all the species have been studied in details. These elements have simple perforation plates, however in certain taxa e.g. *L. parviflora* and *L. microcarpa* both simple and scalariform perforation plates occurs. The position of perforation plates are terminal and subterminal. The lateral wall thickening is pitted, the vented pits are also observed in many taxa.

Leaves are mostly opposite, rarely alternate and exstipulate. The node is uniformly unilacunar and one traced. An arc shaped strands while extending towards the petiole invariably give off two lateral traces at different levels in the nodal region. These may be called as accessory bundles. Their occurrence is noted in a few taxa. In remaining plants, arc shaped strands extend into the petioles without bearing any branch. It is held that nodal evolution might have been evolved a reduction process in the family Lythraceae.

The vascular supply to the axillary bud is derived directly from the stelar tissue. The mechanical tissue is in the form of sclerenchyma which extends around the vascular tissue in many of the taxa.
The anatomy of the petiole shows the distribution of collenchymatous and sclerenchymatous mechanical tissue. The distribution and organisation of vascular tissue are significant. The vascular tissue is bicollateral. It is in various shaped median arc of xylem and phloem or horse shoe shaped strands of complete circular cylinder or triangular cylinder or a ring of discreate bundles (arc + vascular bundles). The development of cortical bundle is notable.

The leaf anatomy reveals dorsiventral, isobilateral or homogeneous nature. The adaxial epidermal cells are invariably larger in most of the plants with thick cuticle. Hypodermis is characteristic in few species of Lagerstroemia. The leaves are mostly amphistomatic, some with hypostomatic. The guard cells have an outer ledges in some species. Trichomes are variable.

The mesophyll is differentiated into one to three layered palisade and spongy tissue of varied layers. Palisade occurs at upper or at both the sides. In few species mesophyll is made up of only spongy tissue. The sclerenchyma is also observed in the mesophyll tissues of Lagerstroemia and Woodfordia. The vasculature is variable in the midrib region. The presence of bundle sheath is noted in various taxa which is parenchymatous or sclerenchymatous.

The epidermal cells are mostly polygonal or irregular. The anticlinal walls are straight or undulated. The cuticular striation occurs in certain species and these may be on both the surfaces of leaf or restricted to only
one surface. The peculiar type of thickening at the polar end of guard cells is observed in *R. serpyllifolia*.

The leaves are amphistomatic in most of the taxa. Anomocytic, anisocytic or diacytic stomata occur in these plants. More than one type of stomata on the same surface of the organ is also recorded in many taxa.

Glandular and non glandular trichomes and scales are of various types. Unicellular long or short, pointed or rounded or blunt or branched trichomes occur in *Lagerstroemia*. Branchced trichomes are notable in *L. tomentosa*. The unicellular and shaggy trichomes are characteristics in *Cuphea*. Scales are noted in *R. floribunda*. Both glandular and non glandular trichomes are common in *Woodfordia*.

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