

D 236

**Foliar changes of some Shorea and Mesua tree species in relation to their development stages and topographic position of a Sri-Lankan lowland rain forest**

Changes in leaf structure through different phases of tree growth within forest strata were examined in Sinharaja forest reserve. Profiles were drawn to depict the forest structure in ridge and valley sites. *Shorea worthingtonii*, *Mesua nagassarium* were sampled from ridge site and *Shorea megistophylla*, *Mesua ferrea* from valley site based on height (seedling <50 cm, sapling 2-5.5m, poles 15-20m, and mature trees >25m). Measurements were taken to investigate leaf area, width, length of drip tip, leaf blade thickness, palisade layer thickness, cuticle thickness and stomatal frequency.

The study revealed that the highest cuticle and palisade layer thickness, leaf blade thickness and stomatal frequency were in mature trees. There was a positive correlation between leaf thickness and plant height and between stomatal frequency and plant height. Saplings had the greatest area, length and width of leaves for all species. Seedlings had the highest length of drip tip. Comparison between species of each genus showed that *Mesua ferrea* had thicker leaf blade, palisade layer and cuticle with higher stomatal frequency than *Mesua nagassarium*. In *Shorea* species, no obvious trends could be shown. *Mesua ferrea* and *Shorea megistophylla* had greater leaf area, length and width than *Mesua nagassarium* and *Shorea worthingtonii*, but *Shorea worthingtonii* and *Mesua nagassarium* seedlings had longer drip tips. This study has shown that the thickest leaves were in mature trees and largest leaves were in saplings of all species. In both genera ridge species had smaller, narrower and shorter leaves than valley species.