

Shoot adaptations of four *Syzygium* species (Myrtaceae) to different light intensities

Understanding the anatomical and physiological basis of tree growth is an important requirement in forest conservation, regeneration and afforestation. Information on the internal response of species to variation in microhabitats in forests is limited. This study examined the anatomical and physiological plasticity of seedlings of four *Syzygium* species (*S. firmum*, *S. makul*, *S. operculatum* and *S. lissophyllum*) in the family Myrtaceae grown under three light intensities ($350\mu\text{mol m}^{-2} \text{s}^{-1}$, $800\mu\text{mol m}^{-2} \text{s}^{-1}$ and $2000\mu\text{mol m}^{-2} \text{s}^{-1}$). These species co-exist in the lowland rain forests.

The attributes measured included seedling height, leaf number, leaf area, stomatal index, total chlorophyll content and leaf anatomy. Analysis of variance was performed on each measure and each data set was statistically analyzed to test for differences among species and for interactions between species and light treatments.

With increasing light intensity, seedling height increased in *S. firmum*, but not significantly so in *S. lissophyllum*. Leaf area and chlorophyll content decreased in all species while the thickness of the leaf tissues (blade, cuticle, epidermal and palisade layer thickness) and the stomatal index increased in all species with a few exceptions. Among the different species, *S. operculatum* was the tallest. *S. firmum* had the thickest cuticle. The highest leaves per seedling was in *S. lissophyllum*, and it differed significantly in the different light treatments.