

Three-year old seedlings grown under uniform environmental conditions at Bandirippuwa Estate were used for determination of stomatal density, rate of transpiration, chlorophyll a & b concentration, total soluble sugars and starch, proline and total soluble protein.

Chlorophyll a/b ratio varied from 1.5-2.5 among the varieties. High yielding cultivars within the variety Typica, improved cultivars, and hybrid crosses recorded the highest chlorophyll a/b ratio of 2.5. Except two cultivars within the variety Typica, others have closely similar quantities of total soluble sugars (9.5-9.8 mg/g fresh weight of leaf), while starch content and sugar/starch ratio within the varieties and their cultivars were found to be highly variable within the range of 6.0-11.0 mg/g and 0.9-2.5 respectively. Marked variation in proline concentration in leave was observed within three varieties and their hybrid crosses. There was no significant difference in rate of transpiration and leaf water potential among the varieties and their hybrid crosses studies.