

Growth and photosynthetic response of four Malaysian indigenous tree species under different light conditions.

ABSTRACT

Growth and photosynthetic response of four indigenous tree seedlings, i.e. *Dyera costulata*, *Dipterocarpus baudi*, *Neobalanocarpus heimii* and *Gonystylus affinis* were studied under different light conditions in a degraded secondary forest. Maximum photosynthesis (A_{max}) was measured at 2 and 12 months after planting. The ratio of variable to maximum fluorescence (F_v/F_m) was determined. Leaves measured at 2 and 12 months after planting were old leaves present on the seedlings and new leaves that had expanded after planting respectively. Seedling growth was measured over four years. Changes in the growth rate and A_{max} with canopy openness were categorised into two groups. The growth and A_{max} of the first group (*D. costulata* and *D. baudi*) were maximum at 30-40% canopy openness. This group may be suitable for planting under large canopy gaps. The second group (*G. affinis* and *N. heimii*) showed maximum growth and A_{max} at relatively low canopy openness (less than 20%). Leaves in the second group suffered chronic photoinhibition under large gap. These species were suitable to be planted under low light conditions.

Keyword: Dipterocarp; Chengal; Jelutong; Enrichment planting.