

## Photosynthetic rates of four tree species in the upper canopy of a tropical rain forest at the Pasoh Forest Reserve in Peninsular Malaysia

### ABSTRACT

Measurements of photosynthesis ( $A$ ) and stomatal conductance ( $g_s$ ) were conducted using the leaves of four tropical tree species (*Dipterocarpus sublamellatus*, *Neobalanocarpus heimii*, *Ptychopyxis caput-medusae*, and *Xanthophyllum amoneum*) in the canopy of the lowland forest at the Pasoh Forest Reserve in peninsular Malaysia. A canopy walkway was used to reach the canopy of 30- to 40-m-tall trees and diurnal changes in  $A$  and  $g_s$  were determined. The diurnal patterns for  $A$  differed between days and between species, though  $A$  of the four species were similar but quite low. In general,  $A$  increased with increasing photosynthetically active radiation (PAR) before noon, then declined. As well, a linear relationship was detected between  $g_s$  and  $A$ , but no statistically significant correlation could be confirmed between these two factors for *D. sublamellatus* and *P. caput-medusae* in November and July. The value of  $g_s$  decreased with increasing vapor pressure deficit for *D. sublamellatus*, but the other species did not show this response.

**Keyword:** Canopy; Diurnal changes; Tropical forest; Photosynthesis; Stomatal conductance