

Photosynthetic capacity, photochemical efficiency and chlorophyll content of three varieties of *Labisia pumila* Benth. Exposed to open field and greenhouse growing conditions.

ABSTRACT

Three varieties (Alata, Pumila and Lanceolata) of Malaysian indigenous medicinal herb *Labisia pumila* Benth. grown in greenhouse and open field were tested to evaluate and compare their photosynthetic and maximal quantum efficiency of photosystem II (F_v/F_m) reactions. Every variety grown in greenhouse demonstrated higher light-saturated photosynthetic capacity than in the open field. The diurnal net photosynthesis (A) curve in the open field also displayed dual peaks with lower daily average A compared to the greenhouse. Varieties Alata and Pumila were found to acclimatize better under both growing conditions. The diurnal patterns of F_v/F_m indicated that plants grown under greenhouse encountered less photoinhibition than in open field condition. A decrease in chlorophyll (chl) a/b ratio in leaves of greenhouse plants with significant increase in chl b was observed. This study indicates that var. Alata and var. Pumila have the capacity to acclimatize to greenhouse growth condition.

Keyword: Chlorophyll fluorescence; Kacip Fatimah; Net photosynthesis; Photoinhibition; Photosynthetic photon flux density; Photosystem II.