B-81 : DIURNAL VARIATION IN CO_2 ASSIMILATION RATES AND RELATED PARAMETERS OF *Artocarpus heterophylla* AND *Magnifera indica*

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Artocarpus heterophylla and *Magnifera indica* are both important tree species grown commonly in Sri Lanka and in many other tropical countries. The uses of these plants are very wide, eg. as vegetables, fruits, timber and shade trees. Though widely grown and used, not much studies are reported on their productivity and physiology. Hence, in this study their CO_2 Assimilation rates and related parameters were monitored through- out the day. Measurements were made on naturally grown wild plants and using a portable photosynthesis system.

The mean daily CO_2 assimilation rates were high in *M. indica*. In both species the CO_2 assimilation rates were relatively low in the afternoon than in the morning,

though the light levels were similar. Further, in both species the stomatal conductance in low and the internal leaf CO_2 concentration is high during the latter part of the day.

In leaves that had been exposed to high light continuously for a relatively longer period, the mesophyll cells may become slightly water stressed. It is well known that water stress stimulates release of Abscisic Acid (ABA) and this could depress CO_2 Assimilation rates and stomatal conductances in plants. Further decrease of light saturated CO_2 assimilation rates are found to be correlated with carbohydrate accumulation in the leaf and this suggests that there could be a feedback inhibition of photosynthesis by assimilates.