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Comparative growth performance of seedlings and tissue cultured plantlets of *Munronia pinnata* (Wall) Theob. (Binkohomba) grown under greenhouse conditions

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A study was undertaken to compare the normal seedlings and tissue cultured plants of *M.pinnata (Binkohomba-family Meleaceae),* which were successfully acclimatized under greenhouse condition. Morphological features such as plant height, number of leaves, number of branches and physiological parameters such as stomatal resistance and photosynthetic rates were investigated over a period of nine months. Completely Randomized Design was applied for experiments and data of both plants were statistically analyzed using MINITAB.

Increments in height, number of leaves and number of branches were defined as the difference between first and the last (after 9 month) measurement. There were significant differences ($p<0.05$) between tissue cultured plants and seedlings for all three morphological parameters tested. Mean plant heights were 5.31±0.26 cm and 3.34±0.40 cm for seedlings and *in vitro* plantlets, respectively. Tissue cultured plants showed higher number of leaves with the mean value of 12.2±1.2, while it was 9.5±0.80 for seedlings. Branching was occurred only in micropropagated plants with a mean value of 1.3±0.37.

Photosynthetic rates were measured using an IRGA open-air system after six and nine months of growth. Measurements were taken two times a day. Tissue cultured plants have higher photosynthetic rates than seedlings in both tested periods. Porocity values were significantly different ($p<0.05$) between two plant types throughout the day and stomatal resistance was always higher in seedlings. Tissue cultured plants showed less resistance to the water loss (low stomatal resistance). In both plant types porocity values decreased in the evening (after 3.00 pm.) when comparing to the morning (10.00 am) and noon (12.30 pm) Both plant types showed slight increment of resistance to water loss when compare to that of first six months. After nine months micropropagated plants showed higher values in increment in number of leaves, number of branches and photosynthetic rates, compared to seedlings. Although resistance to the water loss is low in tissue cultured plants comparing to seedlings after six months, increase in photosynthesis and the resistance to the water loss after nine months can be considered as a positive sign of establishment in the field.