

Effect of Different Substrates on the Growth of Water Trumpet (*Cryptocoryne wendtii*)

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The effect of different substrate compositions on the growth performance of micro propagated ornamental aquatic plant; *Cryptocoryne wendtii* ‘Water Trumpet’ under submerged conditions was investigated. River sand (R), Topsoil (T), Coconut coir dust (D) and Cattle manure (M) were used to prepare the substrates. Plastic containers (20.4 cm diameter, 19.2 cm height) were filled with one of four substrate compositions; S (R:T 1:1), C (R:D 1:1), SM (R:T 1:1 with 10% M) and CM (R:D 1:1 with 10% M). Individual plants (9.60 ± 1.47 cm and 0.13 ± 0.01 g) were potted in each container and each treatment had four replicates. Plants were cultured for 35 days under ambient temperature and light conditions, and the water level was maintained at 10 cm above the substrate. Plant growth parameters and environmental parameters were measured once in every two weeks. One-way Analysis of Variance and Duncan’s multiple range test in post-hoc analysis was employed to test the effect of different substrates on the experimental plants. Water temperature (26.8 ± 0.08 °C) was not significantly different among the four treatments. Water pH value was significantly higher in S (7.78 ± 0.32) than that in C (7.58 ± 0.26), SM (7.69 ± 0.29), and CM (7.51 ± 0.18). Plants grown in C and SM exhibited significantly higher total plant wet weight (0.19 ± 0.03 g and 0.23 ± 0.03 g), shoot wet weight (0.14 ± 0.01 g and 0.17 ± 0.04 g) and the %weight gain (44.71 ± 8.94 and 77.68 ± 20.32) respectively compared to other treatments. SM showed significantly the highest total plant dry weight (19.53 ± 2.05 mg) and shoot dry weight (12.63 ± 2.15 mg) compared to S, C and CM. It can be concluded that the application of river sand and topsoil (1:1) with 10% cattle manure mixture (SM) is suitable for the propagation of the ornamental aquatic plant “water trumpet” under submerged conditions.

Keywords: Ornamental Aquatic plants, Cattle manure, Water trumpet, Light conditions