Comparison of Processed Waste Coir Fiber Based Growing Media for Young Plant Propagation of Selected Greenhouse Vegetable Crops

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The present study was carried out under greenhouse conditions at Jiffy Pvt. Ltd., Kobeigane, Sri Lanka (IL_3). Plant growth performance of three vegetable species (*Solanum melongena L., Solanum lycopersicum* L., and *Capsicum annuum* L.) in three different substrates, comprised of processed waste coir fiber (2 mm) + standard coir fiber pith (20%:80%) (T1), processed waste coir fiber (2 mm) + standard coir fiber pith (40%:80%) (T2), and standard coir fiber pith medium (T3-control) were investigated. The plant growth and substrate parameters were measured. Results showed that particle composition in the substrate treatments affected the morphological traits and the plant growth rate. The germination percentages of each of the three crop species grown in the three treatment mixtures were not significantly different ($p>0.05$). During the majority of the weeks, all three crop species grown in T1 and T3 growing media showed significantly higher ($p<0.05$) plant growth with respect to shoot length, fresh weight, plant dry matter, and also without showing any deficiency symptom. The mixture, T2 showed lower plant growth while resulting in leaf yellowing. The overall results indicated that the growth performance of T1 and T3 growth media was not significantly different ($p>0.05$), and the performance of T2 was significantly ($p<0.05$) lower than T1 and T3 media. Hence, growth media T1 could be selected as a cost-effective alternative growth media to replace the standard coco peat medium used for raising hydroponic vegetable crops at a reduced cost of cultivation.

Keywords: Coco pith, Greenhouse vegetables, Particle composition, Processed waste coir fiber

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