Effect of Water Hyacinth (*Eichhornia crassipes*) compost mixtures on growth attributes of Chilli (*Capsicum annuum*)

S.R. Amarasinghe*, P.G.S. Pallewatta and S.M.A.E. Samarakoon

Department of Soil Science, Faculty of Agriculture, University of Ruhuna, Mapalana, Sri Lanka

Abstract

Production of compost by water hyacinth (*Eichhornia crassipes*) is an effective solution to overcome the problems caused due to its invasive growth in water bodies. The objective of this study was to evaluate the effectiveness of various compost mixtures produced by water hyacinth on the growth performance of Chilli (*Capsicum annum*) var. MI-2. Six compost trials were prepared using different ratios of water hyacinth, cattle manure, spent poultry litter, Eppawala rock phosphate, wood ash and dry leaf litter. Compost production and the greenhouse experiment were done in the Faculty of Agriculture, University of Ruhuna. Two kilograms of top soil (Ultisols) were filled to the polyethylene pots and supplemented with the basal dressing (Urea 0.047 g/pot, Triple super phosphate 0.134 g/pot, Murate of potash 0.1 g/pot) according to the Department of Agriculture recommendations and allowed to stand one week before the plant establishment. The prepared compost mixtures were incorporated into the soil according to the field application rate of 20 MT/ha (26.87 g/pot) in 7 treatments including a control treatment replicated without applying any compost mixture. *C. annum* seedlings were established in pots with three replicates and were laid out in a Complete Randomized Design in the greenhouse. The shoot length (cm) was recorded every other day for 6 weeks. Root dry weight (g), Root length (cm) and shoot dry weight (g) was recorded at the end of the experiment. According to the results, it revealed that the compost mixtures were significantly ($p \leq 0.05$) influenced the growth of *C. annum*. The best shoot length was obtained in treatment 5 which the soil was amended with compost consists of water hyacinth 50%, dry leaf litter 25%, Eppawala rock phosphate 5%, wood ash 5%, and spent poultry litter 15%. Further, the shoot dry weight of C. annum was significantly ($p \leq 0.05$) increased when the soil was amended with the same compost mixture. Therefore, it can be concluded that water hyacinth composted by mixing different amendments can be used to prepare organic fertilizers effectively as a nutrient source for *C. annum* growth.

Keywords: Dry leaf litter, Eppawala rock phosphate, Greenhouse, Spent poultry litter, Wood ash

**Corresponding Author*: rajika@soil.ruh.ac.lk

Acknowledgement: This research was financially supported by the Department of Irrigation, Southern Provincial Council, Sri Lanka.