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Evaluation of growth and yield performances of vetiver (*Vetiveria zizanioides*) under hydroponic system

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Vetiver (*Vetiveria zizanioides*) commonly known as Savandara and directly use for the medicinal purposes and indirectly by extraction for the distillation of the essential oil. Vetiver oil is used both in fine perfumery and in a whole range of soaps, skin lotions, deodorants and other cosmetic applications (Sreenath *et al.*, 1994). Economically most important part of Vetivaria is its fibrous root system. The root system of Vetiver is wide, consisting of long fibrous roots and rootlets going down more than 2m depth. About 85% of the roots can be found in the first 30-35 cm under the soil surface. Major problem in Vetiver cultivation is root damages during harvesting and 40% of the roots remain in the soil, unharvested. These conditions badly effect on the oil quality. It also requires more labour and time for harvesting.

Therefore, it is important to introduce easy and safe harvesting technique for Vetiveria cultivation. Use of hydroponic culture is the most effective and easy method for root harvesting of *Vetiveria zizanioides*. Using this technique harvesting of whole root system, in pure form would be possible. Hence, an experiment was set up at the medicinal plant garden, Faculty of Agriculture, University of Ruhana to select suitable organic liquid fertilizer to obtain higher growth and yield of Vetiver. Albert solution, Maxicrop, worm wash, Albert solution with phosphorous, Maxicrop with phosphorous and worm wash with phosphorous were used as treatments. As a phosphorous source, Triple Super Phosphate (TSP) was added 21.6 g per box. Each box contains 36 l of solution and four Vetiver plants. Treatments were arranged in Completely Randomized Design (CRD) with three replicates. Data on shoot fresh and dry weight, root fresh and dry weight were collected in destructive sampling method and numbers of tiller per bush and number of leaves were collected as non destructive measurements.

Results revealed that, all the growth and yield parameters were significantly higher in Vetiver grown in worm wash and water (1:5) with phosphorous than other treatments and phosphorous markedly effected on root production of vetiver. Therefore, it can be concluded that, worm wash with phosphorous at above rates can be used successfully as a hydroponic solution to obtain higher growth and yield of vetiver and facilitate the harvesting in without damages.

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