

The effect of different potting mixtures on plant growth, yield and oil quality of *Vetiveria zizanioides* L

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Abstract

Vetiver (*Vetiveria zizanioides*), (Graminae) is one of the most important medicinal and aromatic plants. The root of the Vetiver plant is used for medicinal purposes and for extraction of essential oils. Vetiver oil is known as the "oil of tranquility". In baths or in massage, Vetiver is beneficial in the treatment of the symptoms of disorders such as arthritis, rheumatism and a chin, stiff muscles. Vetiver can be grown in a wide range of soil types and harvestable root yield, oil content and oil quality highly depend on soil conditions. Therefore, the objective of the present study was to study the effect of different potting mixtures on plant growth, root yield, oil content and oil quality of Vetiver.

A pot experiment was carried out at the Medicinal Plant Garden, Faculty of Agriculture, University of Ruhuna to study the effect of different potting mixtures on root yield, oil content and oil quality of Vetiver. Fourteen different potting mixtures [top soil: sand (1:1, 1:2), top soil: sand: coir dust (1:1:1, 1:1:2, 1:2:1, 1:2:2), top soil: sand: paddy husk (1:1:1, 1:1:2, 1:2:1, 1:2:2), top soil: sand: saw dust (1:1:1, 1:1:2, 1:2:1, 1:2:2)] were tested. Nine months after planting significantly higher ($P \leq 0.05$) root dry weight (521g) and shoot dry weight (1277g) were recorded in plants grown in potting mixture of top soil: sand: coir dust (1:2:2), and those grown in potting mixture of top soil: sand (1:2) (482g and 1091g), as compared to the plants grown in other media. *Vetiveria* root oil was extracted using steam distillation procedure and oil quality was tested using Gas-Liquid Chromatography. Plants grown in top soil: sand (1:2) had 1.78% oil and 0.8%, 4.5%, 16.3% and 6.4% of β - Vetivenene, β - Vetivone, Khusimol, α - Vetivone respectively. Plants grown in top soil: sand (1:2) mixture performed better in term of growth, yield quality and quantity of oil as compared to those grown in other potting mixtures.

Keywords: oil content, oil quality, potting mixtures, root yield, *Vetiveria zizanioides*