Feasibility of growth and nutrition of *Dieffenbachia amoena* 'Tropic Snow' in pot growth-medium amended with sugarcane bagasse vermicompost

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Abstract

Nowadays, introduction of conversion technologies to solve environmental problems in accumulation of sugarcane bagasse, as an alternative to peat, in the ornamental plants industry seems necessary. For this purpose, in an experiment, the effects of substitution of sugarcane bagasse + cow manure vermicompost with peat in 60% peat + 30% vermiculite + 10% perlite medium were examined on growth and nutrition of *Dieffenbachia amoena* ornamental plant. After production of the vermicompost, rooted cuttings of the plants were cultivated in the control medium (containing 60% peat + 30% vermiculite + 10% perlite) and the media in which 10, 20, 30, 40, 50 and 60% of vermicompost was replaced with peat in control medium. Factors such as plant height, diameter, fresh and dry weights of shoots and leaves, fresh and dry weights of roots, leaf area, and nutrients such as nitrogen, potassium, phosphorus, calcium and magnesium in plants and substrates were measured. Physical properties of the substrates including aerial porosity, water holding capacity, total porosity and bulk density were measured too. Results showed that increasing the level of vermicompost + sugarcane bagasse had a significant effect on nitrogen and potassium content of leaves, and nitrogen, phosphorus, potassium, calcium and magnesium content of the substrates. The highest amounts of these elements were measured at 60% vermicompost + bagasse treatment. The substrate containing 60% vermicompost + sugarcane bagasse had maximum plant height (15.91 cm), diameter (9.53 mm), fresh weight of stem and leaf (158.91 g), dry weight of stem and leaf (33.99 g), dry weight of root (25.87 g) and leaf area (2680.5 cm²). Based on the results, vermicomposting of sugarcane bagasse is in accordance with the environment, and can be used in the growing media for production of flowers and plants.

Keywords: Peat, Perlite, Vermiculite.

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