

Effect of coco peat medium on growth and quality of poinsettia (*Euphorbia pulcherrima*. Willd.)

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ABSTRACT

Poinsettia variety 'Krishna Red' was grown on coco peat based medium. Five different growing media comprising of coco peat and normal growing medium (soil: sand: farm yard manure 2:1:1) at different ratios (v/v) of 100:0 (T₁), 75:25 (T₂), 50:50 (T₃), 25:75 (T₄) and 0:100 (T₅) were used. For each pot 5 g of neem cake was applied while potting. The experiment was conducted using 15 cm pots with randomized complete block design with five replications and five plants for each replication. Increased proportion of coco peat in the medium showed reduced bulk density, particle density and increased the porosity, water holding capacity and CEC. The pH of 100% coco peat medium was slightly acidic but was well within the preferable range of most of the ornamental crops. The exchangeable calcium, magnesium, potassium, sodium and DTPA extractable iron, copper, zinc and manganese content in 100% coco peat medium were higher. In poinsettia the market value depends on the area of colourful bracts. The highest bract area was observed in plants grown on 50% coco peat medium with 933.3 cm². It was closely followed by T₂ (75%) and T₁ (100%) which recorded 922.5 cm² and 892 cm², respectively. Fifty per cent coco peat medium registered about 125% more bract area. The star diameter which gives an indirect measure of number of bracts and bract size was found to be the highest in T₃ (50% coco peat medium). It was about 133% more than the plants grown in normal growing medium (T₅). Based on the results, growing of poinsettia on 50% coco peat medium is recommended for better growth and development.

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Poinsettia (*Euphorbia pulcherrima*. Willd.) is an important potted plant gaining popularity among nurserymen in India. In container production, selection of suitable media plays an important role on the growth and quality of plants. Potting media consisting of soil, sand and FYM in the ratio of 2:1:1 is traditionally used by most nurserymen. The favourable physico chemical characteristics of the medium varies from crop to crop and has to be standardized by location specific research. Commercially poinsettia is grown in soil less media like peat: perlite mixture. Sphagnum peat is the primary organic component of container media in hi-tech production of potted plants like poinsettia and chrysanthemum. It is expensive and will become even more so as ecological concerns about current harvest methods continue to be raised. A number of researchers and nursery producers are searching for peat substitutes as more composted organic products become available. A number of organic materials have been successfully substituted for peat (Ingram and Henley, 1989). High-quality coir pith appeared to be an acceptable substitute for sphagnum or sedge peat in soil less container media (Meerow, 1995). Compost produced from coir dust can be successfully used as a component in container media (Cresswell,

1992). Compost used for this purpose must be of a consistent quality and fully matured. The most important physical properties are high porosity and a pore size distribution to facilitate optimal air to water ratios. The desired pore size distribution can be achieved by establishing an appropriate blend formulation. In addition, container media should have low level of soluble salts (EC), slightly acidic or neutral pH, high cation exchange capacity (CEC), maintain stable volume, and have sufficient level of major nutrients. Coco peat used by itself usually has too high level of soluble salts, too much available nitrogen, and may undergo volume reduction over time. Blending of coco peat with other materials (e.g., sand, red earth, farm yard manure) can produce mixes with low level of EC, sufficient concentrations of nutrient and physical properties suitable to grow plants in containers. Since not much work has been done, to evaluate the performance of poinsettia under coco peat based media, this research work was initiated.

MATERIALS AND METHODS

The experiment was conducted at the Department of Horticulture, Faculty of Agriculture, Annamalai University during 2004. Rooted cuttings of poinsettia