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Response of different growing media on the growth and yield of gerbera (*Gerbera jamesonii*) under hydroponic open system

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Abstract : The study on the effect of different substrate on growth and yield of gerbera was carried out in a Randomized Complete Block Design with 14 treatments and 3 replications. Treatments consists of were as fallow : fine sand, peat + fine sand (25%+ 75%), peat + fine sand (50% + 50%), perlite + peat (75% + 25%), perlite + peat(50% + 50%), perlite + peat (25% + 75%), perlite + peat + expanded clay (25% + 70% + 5%), perlite + peat + expanded clay (50 %+ 25% + 25%), perlite + peat + expanded clay (25%+ 50% + 25%), perlite + expanded clay (50%+ 50%), coco peat , coco peat + perlite (75% + 25%),coco peat + perlite (50% + 50%), coco peat + perlite + expanded clay (50% + 25% + 25%), plants were fertilized with a same nutrient solution. Results showed that, the growing medium [perlite + peat + expanded clay (25% + 70% + 5%)] was the best of all. In this substrate, flower number, flower diameter, shoot diameter, stem neck diameter, flower height and vase life showed significant difference among growing media.

Key words : Gerbera, Perlite, Coco peat, Peat, Expanded clay

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Gerbera (*Gerbera jamesonii*) is one of the herbaceous plants with colorful and beautiful flowers that are used as cut, pot and garden flower. Various planting beds around the world is used for growing gerbera such as perlite, rock wool, vermiculite, sand, coconut fiber (coco peat), expanded clay, organic substrates, compost cow, zeolite, pumice, sand etc. reported by Khalaj (2007) and Fakhri *et al.*(1995). Soil-less cultures have been successfully used for several decades with the aim to intensify production and reduce cost (Maloupa *et al.*, 1993). Peat is the most widely used substrate for potted plant production in the nurseries and accounts for a significant portion of the materials used to grow potted plants (Marfa‘ *et al*., 2002 and Ribeiro *et al*., 2007). Since the last few years, coco peat, also known as coir dust or coconut mesocarp has been considered as a renewable sphagnum peat substitute for the use in horticulture (Yau and Murphy, 2000). Perlite has been widely used in soil-less cultures too. Perlite, an aluminosilicate of volcanic origin, is rather inert (low buffering and cation exchange capacities of 0–1 mg L^{-1}). In general, it has a closed cellular structure, with the majority of water being retained superficially and released slowly at a relatively low tension, providing excellent drainage of the medium and aeration of rhizosphere (Maloupa *et al*., 1993). The objective of this study was to determine the effect of different substrates on growth and yield of gerbera under an open soil-less production system.

RESEARCH METHODS

This experiment was carried out as Randomized Complete Block Design (RCBD) with 14 treatments and 3 replications for study on the effect of different substrate on growth and yield of gerbera (*Gerbera jamesonii*) over a period of 6 months as follows: