

Zeolite: An appropriate alternative for peat in growth medium of *Dieffenbachia* ornamental plant

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Abstract

Due to economic and environmental limitations of peat moss as a growth medium for ornamental plants, researchers seek an appropriate alternative in flower and plants industry. Zeolite, due to its high potential in water holding capacity and cation exchange capacity, has the ability to replace peat moss. To investigate the possibility of substituting peat moss by zeolite as a proper medium for growth of *Dieffenbachia amoena* ornamental plant, an experiment was conducted with zeolite at six levels (0, 10, 20, 30, 40 and 50 % v/v), two levels of nutrient solution (with and without solution) in base substrate of 2:1 ratio of peat: perlite, a factorial experiment in a completely randomized design (12 treatments, three replications and three pots per treatment) in Greenhouse of Flower and Plant Terminal of Mazandaran province, Salmanshahr, Iran. Results showed that the highest dry weight of leaves and roots, number of leaves and stem height were obtained in 20% zeolite treatment with nutrient solution. Plants had the lowest growth in 40 and 50% zeolite treatments. Substrate bulk density was increased and porosity was decreased proportional to the applied zeolite in the substitution system. Zeolite had the greatest effect on *dieffenbachia* plant growth at 10-20% concentration. In general, application of zeolite caused better growth of *dieffenbachia* plants, improvement of growth indices such as dry weight of leaves, stem and roots, number of leaves, diameter and length of stem and also improvement of nutrient uptake by plants in comparison with peat moss, which is a common substrate in hydroponics.

Keywords: Ornamental plants, Soilless media, Substitution potential.

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