Journal

J. Biol. Chem. Environ. Sci., 2018, Vol. 13(1): 21-38
http://biochenv.blogspot.com.eg/

EFFECT OF LIGHT INTENSITY AND GROWING MEDIA ON *CORDYLINE FRUTICOSA* "KIWI" PLANTS

Zeinab H. El-Sadek , Ehsan, E. A. El-Deeb

Ornamental Plants and Landescape Gardening Res. Dep., Horti. Res. Insti., ARC, Giza, Egypt.

ABSTRACT

This work was carried out in the experimental Nursery of Ornamental Plants and Landscape Gardening, Horti. Res. Insti. during the two seasons, 2015 and 2016.The aim of this study was to determine the best level of light intensity with the use of agricultural media from local plants wastes to produce *Cordyline fruticosa* "Kiwi" plants, and reducing production costs and the pollution of the environment. The plants were planted under three levels of light intensity [686 (low), 831(moderate) and 1114 (high) Lux] in four mixture media (peatmoss+ sand, olive meal+ sand, water hyacinth+ sand and peatmoss + olive meal + water hyacinth + sand). The results were followed: using the low light intensity (686 Lux) resulted in a significant increase in most vegetative growth qualities, chlorophyll a, b, and carotenoid. While, the moderate light intensity (831 Lux) gave the best results to the number of roots and fresh and dry weight of the roots, the concentration of indoles in leaves and total carbohydrates in the roots. While the diameter of the stem, length of root and concentration of total carbohydrates in shoots increased with high light intensity (1114 Lux). The treatment of using peatmoss+ sand showed the best media for all vegetative growth and chemical characters, followed by the mixture of peatmoss+ olive meal + water hyacinth+ sand, whereas, the olive meal+ sand recorded the lowest results. Planting the plants in peatmoss+ sand under low light intensity recorded the best results in most vegetative growth qualities and increased concentration of chlorophyll a and carotenoid in leaves. Exposure of plants to moderate in light intensity with peatmoss+ sand gave the best results with characters of the roots and increased indoles in leaves and total carbohydrates in the roots. The concentration of total carbohydrates in shoots and chlorophyll b in leaves increased when cultivating plants in mixture peatmoss+ sand under high of light intensity. It can be recommended planting the plants in agricultural media consisting of peatmoss + sand followed by peatmoss+ olive meal+ water hyacinth+ sand under the lighting intensity at 686 Lux to produce of *Cordyline fruticosa* "Kiwi" plants

Key words: *Cordyline fruticosa* "Kiwi"**,** Light intensity**,** Olive meal**.** Peatmoss, Sand, Water hyacinth (*Eichhornia crssipes*)**,**