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EFFECT OF SALINITY AND TYPES OF FERTILIZATION ON BLUBS PRODUCTION AND CHEMICAL CONSTITUENTS OF *POLIANTHES TUBEROSA* L.

Khella E. A. * Z. H. Riad * and A. Nabih **

** Floriculture Res. Dept. Hort. Res. Inst. ARC, Giza, Egypt.*

*** Botanical Gardens Res. Dept. Hort. Res. Inst. ARC, Giza,
Egypt.*

ABSTRACT

The present experiment was consummated throughout two successive seasons (2014 and 2015) at the nursery of Horticulture Research Institute, Agriculture Research Center, Giza, Egypt. It intended to find out the independent and the combined effects of different levels of saline water in irrigation (0, 1000, 2000 and 4000 ppm) and types of fertilization (chemical, of NPK at 1:1:2, organic (actosol) at 5% and bio-fertilizers EM 5%, yeast extract at 5% and garlic extract at 500 ml/l) on roots, bulbs and bulblets parameters as well as chemical constituents of the produced bulbs of *Polianthes tuberosa* L. plant, for achieving the hope of producing high bulbs quality under the conditions of saline water used in irrigation. The results revealed that using the lowest salinity level (1000 ppm) proved its mastery for improving all root parameters studied (root length and fresh and dry weights of roots) in the two seasons. Plants which received the lowest salinity level (1000 ppm) or that received tap water proved their superiority in raising either bulb circumference or bulb fresh weight. Furthermore, plants which received saline water at 1000 ppm gave rise to the utmost high values of No. of bulblets/plot (bulblets yield). Also, the heaviest bulblet fresh weight was obtained due to supplying plants with the same salinity level (1000 ppm), followed without significant difference by plants which received tap water. Meanwhile, total carbohydrates content in bulbs was increased over that of the other treatments used due to receiving plants the lowest salinity level (1000 ppm) and then gradually decreased by increasing salinity level to 2000 and 4000 ppm. Also, clear increment on root length and fresh and dry weights of roots was observed due to using actosol 5% in fertilization in the two seasons. Meanwhile, plants which received actosol 5%, followed by those which received EM 5% were the best for producing the heaviest fresh weight of bulb. Bulblets yield recorded the utmost high values by using either garlic extract or actosol 5% in the two seasons. Also, using actosol at 5% in fertilization proved its mastery in raising bulblet fresh weight in both seasons. Treating plants with actosol 5% followed by those which received EM 5% proved their superiority in raising total carbohydrates content in the bulbs.

From the aforementioned results and interactions it could be recommended to use either tap water or the lowest salinity level (1000 ppm) in irrigation combined with actosol at 5% for improving all root parameters, bulbs and bulblets traits and chemical constituents of bulbs of *Polianthes tuberosa* L., plant.

Key words: chemical, organic and bio-fertilizers, *Polianthes tuberosa*, saline water,