DOI : 10.35124/bca.2019.19.2.3591

Biochem. Cell. Arch. Vol. 19, No. 2, pp. 3591-3596, 2019 | www.connectjournals.com/bca | *ISSN 0972-5075*

EFFECT OF SUCROSE AND 8-HQS ON VASE LIFE OF FLOWER *DENDRANTHEMA ×GRANDIFLORUM* KITAM PLANTS

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(Received 19 March 2019, Revised 7 July 2019, Accepted 23 July 2019)

ABSTRACT : This experiment was carried out at the Department of Biology, College of Education for Pure Sciences, University of Diyala, on *Dendranthema* × *grandiflorum* Kitam plants (purple flower), to study the effect of pulse treatment (2h) with sucrose at 0, 5 and 10% interacted with 0, 150 and 300 mg L^{-1} of 8-hydroxyquinoline sulfate (8-HQS) in holding solution on vase life flowers. So Factorial Experiment was conducted by using Randomized Design with three replicate and three flowers for each. The results showed: flowers pulsed in 5% sucrose gave significant higher values of vase life 34.0 days, water uptake 51.5 cm^3, higher percent increase in fresh weight after 4 days and higher percent increase in flower diameter after 6 days . Flowers treated with 150 mg L^{-1} 8-HQS gave significant effected of vase life to 34.1 days,increase inwater uptake 53.8cm^3, higher percent increase in fresh weight after 4 days from harvested. In general, interaction between pulsing in 5% sucrose and then hold in 150 mg L^{-1} 8-HQS manifested best result of vase life.

Key words : *Chrysanthemum* × *grandiflorum* Kitam plants, factorial experiment.

INTRODUCTION

Chrysanthemum is a short-day, perennial, semi-shrub ornamental plant originally home to China and Japan. The plant is also called "Autumn Queen" due to its flowering in this season, when flowers of other plants are relatively few compared to the spring season (Al-chalabi and Khayat, 2013). *Chrysanthemum* has a great economic importance for its contribution to support national income by exporting it during the flowering season, as well as its importance as cut flowers (Budiarto *et al*, 2006). Its production accounts for 30% of the world's commercial cut flowers (Teixeira da Silva *et al*, 2013).

It is characterized by cheap prices as well as easiness of production and controlling the flowering yield at any time of the year by controlling the appropriate photo-period due to its sensitivity to different light treatments (Al-Chalabi and Khayat, 2013). Cut flowers have general rules that must be followed to maintain the quality and duration of survival, such as light, heat, appropriate time and method for cutting. However, it has been also found that preservative solutions used immediately after cutting are of significant importance (Hamza *et al*, 2015).

Most of the flower preservative solutions contain carbohydrates such as glucose, silver nitrate or citrate, and 8-hydroxyquinoline sulfate (8-HQS) that collectively act in prolonging the vase age. Accordingly, these solutions preserve energy supply by carbohydrates and fixation of flowers color through the use of metals and acidifying substance that reduces the pH to control enzymatic activities (Al-chalabi and Khayat, 2013).

Monterio *et al* (2002) indicated that carbohydrates have an important role in maintaining the quality of flowers during the post-cut period since they are the main source of carbon necessary for energy production for metabolic processes. It is known that, after separation of flowers from their mother plant, the supply of photosynthesis products is ceased, leaving the flowers dependent on the limited amount of products synthesized in the vegetative assemblage that was cut with the flower and plays an essential role in the post-cut life of flowers (van der Muelen-Muisers *et al*, 2001).

In order to avoid the reduction in the rate of supplying the cut flowers with carbohydrates required for their maintenance for as longer time as possible, it is preferred to add these carbohydrates to the preservation solution or to the flowers before the use of the solution (Redman *et al*, 2002).

All kinds of carbohydrates present in the preservative solution provide an excellent environment for the growth of microorganisms that closes the water absorption vessels in the stem. Therefore, carbohydrates must be