

P-148 (242)**CHANGES IN THE ANTIOXIDANT SYSTEM IN RESPONSE TO EXOGENOUS ETHYLENE DURING DEVELOPMENT IN CUT ROSE (ROSA HYBRID) CV. MAROUSSIA**

Mina Bayanati, PhD St. Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; mbayanati2014@gmail.com (Presenting author)

Assist. Prof. Khadijeh Razavi, Department of Plant biotechnology, National Institute of Genetic Engineering , and Biotechnology NIGEB, Tehran, Iran; razavi@nigeb.ac.ir

Prof. Ali Tehranifar, Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; tehranifar2009@yahoo.com

Assist. Prof. Tahmineh Lohrasbi, Department of Plant biotechnology, National Institute of Genetic Engineering, and Biotechnology NIGEB, Tehran, Iran; Lohrasebi@nigeb.ac.ir

Assist. Prof. Hossein Neamati, Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; nemati@um.ac.ir

Assist. Prof. Nima Ahmadi, Department of Horticultural Science, Tarbiat Modares University TMU, 8203 P.O.Box 14115-336, Tehran, Iran; noorahmadi@yahoo.com

Roses (*Rosa X hybrida*) are one of the most important cut flowers which are available in many different colours and sizes in all of the year. The effects of ethylene on display quality of ornamental plants are important. During the development petals, ethylene raises levels of hydrogen peroxide (H₂O₂). In order to understand petal senescence, it is important to explore the mechanisms of oxidative stress management. In this study, the activities of antioxidant enzymes were characterised during rose flower bud and opening. *R. hybrida* cv. 'Maruossia' (long vase life) flowers were harvested from a commercial greenhouse at 2 stages of flower opening (stage 2: partially opened bud and stage 7: fully-opened flower). Flowers were exposed to 8 L L⁻¹ ethylene concentration for 24–72 h and Control cut flowers were placed in identical glass chamber without receiving ethylene treatment. Results showed that the activities of catalase (CAT), peroxidase (POX), increased of during stage 2 after 24 h. In Maruossia flowers, the activity of CAT was gradually increased at stage 2 after 48 h. The significant declines in total superoxide dismutase (SOD) activity was observed at stage -7 after 48h , that shows support loss it against damage by O₂⁻. Higher POX activity than CAT activity suggests that POX can serve as a better intrinsic defensive tool to resist ethylene damage at 7 stages.

Keywords: Catalase, Flower Senescence, H₂O₂, Peroxidase, Superoxide Dismutase