Title The effect of 1-MCP and its preservative solution combinations on the vase life of rose cultivar bordeaux

Author Elisabeth Jámbor-Benczúr Orsolya Terék Ákos Máthé and Gábor Boronkay

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Abstract

Roses are both the most important and the leading cut flowers all over the world. The majority of production is located in South-America and Africa. The flowers are transported from continent to continent to reach their markets. Consequently, it is important to preserve their value during transportation. The longevity and quality of cut flowers depend on various factors: e.g. the storage atmosphere and the chemicals used as preservatives. As the greatest effect on cut flowers is caused by ethylene, it is important to control its production during the post harvest life. l-MCP (1-methylcyclopropene), an inhibitor of ethylene biosynthesis binds ethylene and prevents its undesirable postharvest effects. l-MCP has also been reported to improve the vase life and postharvest quality of various cut flowers. The floral preservative 'Spring' is also widely used in the floral industry for prolonging the vase life of cut flowers, similarly to the sucrose treatments that were also observed to prolong vase life and improve the quality of various cut flowers. With regards to ensuring the longest possible vase life of the flowers, our experiments were aimed at studying the effect of 1-MCP with different duration of treatments and in combination with 'Spring', sucrose (SU) and Clorox (CL) as an antibacterial agent. The treatments were the followings: Distilled water (DW) as control, DW + 1-MCP, CL 2 mlL^{-1}, CL 2 mlL^{-1} + 1-MCP, CL 2 mlL^{-1} + 10 gL^{-1} SU + l-MCP, CL 2 mlL^{-1} + 20 gL^{-1} SU, CL 2 mlL^{-1} + 20 gL^{-1} SU + 1-MCP, Spring 10 mlL^{-1}, Spring 10 mlL^{-1} + 1 - MCP. Flowers were treated with 1-MCP for 6 hours at 17°C, and for 18 hours at 4°C, at a concentration of 0,5 gm^{-3} For evaluation the ornamental value, the diameter of flowers, the vase life and the SPAD value of leaves were measured. The results have shown that the longer 1-MCP treatment is more efficient both for the vase life and the diameter of flowers. The best result was achieved with the treatment of 'Spring' 10 mlL^{-1} + 1-MCP (18 h.); the vase life was 11.2 days compared to control (8,3 days). The shortest vase life (6,6 days) was found at CL 2 mlL^{-1} + 10 gL^{-1} SU + l-MCP (6 h.). The SPAD values proved to be similar, except for the treatments with Clorox, where they were lower. (This work was supported by OTKA project No. is T 049642)