

**Title** Application of different levels of malic acid and salicylic acid cut rose (cv. Utopia)  
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### Abstract

The naturally short vase-life of cut flowers, lead to problems with long distance transportation and subsequent marketing. The effect of malic acid presence in preservative solution is confirmed in many cut flowers earlier. Here we apply malic acid as dip treatments for the first time. This study was conducted to investigate the effect of different concentrations of salicylic acid (SA) and malic acid (MA) as 12-hours dip treatments on quality and vase life of of cut rose flowers (CV. Utopia). Four levels of malic acid (0, 2, 4 and 6 mM) and three level of salicylic acid (0, 1 and 1.5 mM) were tested in a factorial arrangement, carried out in a complete randomized design which was replicated trice with 3 cut flower in each replication in horticulture laboratory of agriculture faculty of Islamic Azad University, Karaj branch. An external control treatment was included for comparison (200 mg l<sup>-1</sup> HQS). In addition to vase life following traits were measured in 8<sup>th</sup> day of experiment; malondialdehyde content (MDA), chlorophyll index (SPAD), vase solution uptake, fresh weight, flowers diameter and appearance quality. Applying malic acid and salicylic acid was shown more efficient to increase vase-life and quality of cut rose flower compared to external control treatment (200 mg l<sup>-1</sup> 8-HQS). While external control tended to remain in best statistical group in solution uptake, flower diameter and wet weight reduction, the highest vase life was recorded in 6 mM MA + 1.5 mM SA and 2 mM MA + 1.5 mM SA (17.1 and 16.7 days respectively) which was significantly higher than that of external control and distilled water (11.3 and 8.3 days respectively). The superior treatments in vase life had the best appearance quality and were in the group with least MDA content. On the other hand, the superior treatments were in the middle place both in solution uptake and flower diameter increase. This shows that the higher vase life is resulted via slowing down the developmental processes of cut flower. According to the results obtained here, we suggest these environmental friendly, low cost and readily available materials to have a high potential to increase vase life of cut rose flowers.