

Title The relationship between floral fragrance and vase life of cut roses
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Abstract

Fragrance is a consumer trait that adds commercial value to cut roses. Fragrance is not present in most modern cut rose cultivars because they have been selected for quality parameters such as long stems, color and vase life. Moreover, rose scent is commonly thought to be negatively associated with flower vase life. Studies on floral fragrance in rose have been directed towards determination of main volatile compounds of different rose cultivars, and elucidation of their biosynthetic pathways in the flower. This study presents a quantitative analysis of 10 main volatile compounds of fragrant and non-fragrant cut rose cultivars during vase life. Two main volatile emission patterns were observed throughout vase life. First, a low volatile concentration is produced at the beginning of vase life followed by an increased concentration towards the end of vase life in some cultivars. Second, a high initial volatile concentration that declined during vase life was observed in other cultivars. Moreover, volatile composition between fragrant and non fragrant cultivars differed in the number and concentration of the main volatile compounds produced. Some volatile compounds were exclusively present in fragrant cultivars while others were present in both fragrant and non fragrant cultivars at different concentrations. Additionally, the relationship between fragrance and postharvest traits such as ethylene production, respiration rate and vase life was studied. Fragrant rose cultivars can produce ethylene and display high respiration related with visible senescence symptoms having short vase life. Alternatively they can have ethylene production below detection levels, low respiration rates and acceptable vase life. Therefore, fragrance can not be directly related with short vase life of cut rose cultivars. As an alternative, postharvest factors such as ethylene synthesis or sensitivity, may be more important for influencing the postharvest performance of fragrant cut rose cultivars.