**Title** Effect of silver thiosulfate complex (STS) in combination with sucrose on the postharvest fragrance of cut sweet pea flowers

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**Abstract**

Sweet pea (*Lathyrus odoratus* L.) is a desirable cut flower because of its wide range of colors and exceptional fragrance. However, cut flowers of sweet pea have short longevity, and so antisenescence preservatives such as silver thiosulfate complex (STS) have to be used immediately after cutting. It has been reported that treatment with STS in combination with sucrose is more effective to improve postharvest life than that with either STS or sucrose alone. In this study, we investigated the effects of STS alone and STS followed by sucrose treatment on the fragrance of cut sweet pea flowers. Flower of sweet pea 'Sweet pink' were cut and divided to control and STS treatment groups. STS treatment group was subjected to 1000-fold diluted STS solution for 1 hour. Then STS treated group was divided to 2 groups. One group was treated with 4% sucrose solution for the remainders of experiment, and another STS treatment group and the control was treated with water alone. Exogenous aroma compounds of 3 cut flowers (9 florets) from the control, STS and STS followed by sucrose were analyzed by SPME method, and identified and quantified by GC-MS. Aroma compounds were recovered at 12:00 from the next day after cutting for 5 days in order to determine the daily pattern of emissions. Twenty one major aroma compounds were detected in the all treatments. β-*trans*-ocimene, linalool and *trans*-geraniol were significantly emitted. Emissions from the STS treatments were greater than from the control, but were much less than from STS followed by sucrose treatment. These results reveal that STS treatment alone had only a small effect on the emission of aroma compounds from the flower of sweet pea, but that STS followed by sucrose treatment greatly promoted the emission of aroma compounds.