Abstract:

Vase life of cut rose cv. Red Sandra maintained in distilled water (DW) or pulsed with 1mM AgNO3 or 1mM STS for 3hr without re-cutting were 8.3, 10.8, 11.1 days, respectively. In this case, the petal withering of cut flowers treated with silver compounds was delayed by 5-6 days compared to control. Water potential at the peduncle of the cut flower treated with silver compounds was constant until the termination of the experiment, whereas that of control decreased dramatically after 5 days. In STS treated flowers, the Ag+-ion that moved to the flower head in the STS treatment acted as an ethylene stimulant instead of an ethylene action inhibitor. For the investigation of silver uptake and distribution throughout the cut stems, flower stems were placed in distilled water only or solutions containing 0.5mM AgNO3 or 0.5mM STS for 0 min, 5min, 30min, 1hr, and 4hr, after which cut flowers were divided into flower head, leaves and the upper, middle, and basal stem segments with each 15cm in length, for Ag+-content determination. Silver ion absorption in cut flowers treated with AgNO3 was only restricted within the basal stem, while silver ions in cut flower treated with STS were found in all parts. If the stem of the cut rose was re-cut by removing the 5cm basal stem, there was no significant difference in vase life between AgNO3 (9.4 days) and STS pretreatment (8.9 days). However, if 15cm was removed from the basal stem, the vase life of the cut flower pretreated with STS was prolonged by about 1 day than either AgNO3 or DW treatment. Vase life of cut rose pulsed with AgNO3 was shortened by 1.5 days for the 15cm re-cutting compared to the 5cm re-cutting, while vase life in STS treatment or DW did not depend on whether stem or 15cm was re-cut. These data indicate that STS is a more effective pretreatment than AgNO3 for cut rose ‘Red Sandra’ if re-cutting of basal stem after pretreatment is considered.