

Title S-carvone as a potential vase solution component
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Abstract

Wilting characterises the end of vase life for many cut-flower and foliage lines. Insufficient water uptake is often due to stem-end blockage and/or poor stem hydraulic conductance that involve wound healing and/or microbial growth. Treatment of plant tissues with S-carvone can inhibit the synthesis of wound healing compounds. S-carvone also has antimicrobial activity. Provision of S-carvone in the vase water has been shown to extend the vase life of flowering *Hakea francisiana* and *Grevillea* 'Crimson Yukio' stems (Proteaceae). While it was suggested that S-carvone acted as a wound response inhibitor, its potential antimicrobial action warrants examination in a vase solution context. S-Carvone was tested for activity against vase solution bacteria *in vitro* (agar well diffusion assay) and in a vase solution experiment. Also, S-carvone was evaluated as a vase solution ingredient for the non-Proteaceous cut-flower and foliage lines of *Acacia holosericea*, *Baeckea* sp., *Chamelaucium uncinatum* cv. 'Mullering Brook' and *Chrysanthemum* sp. cv. 'Dark Splendid Reagan'. S-carvone tested at concentrations effective for the two Proteaceae species (0.318 and 0.636 mM) did not suppress bacterial populations in the vase solution. Moreover, there was no *in vitro* activity at these concentrations against *Bacillus cereus*, the predominant bacterium in *A. holosericea* vase water. S-carvone at both concentrations had significant ($P < 0.05$) positive effects on relative fresh weight maintenance and on vase life of *Baeckea* sp. However, there were no such effects for *A. holosericea*, *C. uncinatum* or *Chrysanthemum* sp.