Abstract

We previously concluded that the xylem blockage that prevents water uptake into several cut flowers is mainly due to the presence of bacteria, whilst in chrysanthemum and *Bouvardia* we observed a xylem occlusion that was mainly due to a wound-reaction of the plant. We have further tested which of these two mechanisms was dominant in *Astilbe,Viburnum* and rose flowers. *Astilbe x arendsii* (cvs. Erica and Glut) flowers were stored dry in plastic bags (24 h at 5 °C, 100% RH) and placed in water at 20 °C without recutting the stems. The dry storage treatment considerably hastened a wounding-induced xylem occlusion in the stems. A 5 h pulse treatment with inhibitors of peroxidase (hydroquinone) and catechol oxidase (tropolone and 2,3-dihydroxynaphtalene), prior to dry storage, considerably delayed the xylem blockage. The 24 h dry storage treatment had no effect in rose (*Rosa x hybrida* cv. Red One), and *Viburnum opulus* (cv. Roseum). These flowers were therefore directly placed in water, with and without enzyme inhibitors. Except hydroquinone, all tested enzyme inhibitors reduced bacterial growth in the vase water. The latter chemicals could therefore not be used to distinguish between a plant-induced and a bacterial occlusion of the xylem. Hydroquinone had no effect on the time to wilting in roses, nor in *Viburnum.* It considerably delayed wilting in *Astilbe* flowers that were directly placed in water after harvest. It is concluded that the blockage in *Astilbe* is mainly due to the plant-induced xylem occlusion. The xylem occlusion in the tested rose and *Viburnum* cultivar was apparently not due to this mechanism.