Title Effects of GA_{4+7} plus BA on postproduction quality of pot tulips

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Abstract

Previously we reported that GA_{4+7} plus benzyladenine (BA) significantly enhances longevity of pot 'Seadov' tulip (*Tulipa gesneriana*). In this experiment, we extended the survey to several tulip cultivars having distinctive senescence symptoms; 'Friso' (wilting-type), 'Bel Air' (wilting-abscission-type: abscission shortly after tepal wilting) and 'Bright Parrot' (abscission-type: abscission without wilting). Plants were sprayed with 0, 10 or 50 ppm GA_{4+7} plus BA and placed in a simulated consumer environment to evaluate the effectiveness of GA_{4+7} plus BA for enhancing postproduction quality. The effectiveness of GA_{4+7} plus BA greatly varied with cultivar. It significantly increased whole plant longevity of 'Friso' by more than 3 days regardless of concentration, while it had less effect on 'Bel Air' and no effect on 'Bright Parrot'. Individual flower longevity of 'Friso' was significantly enhanced by pretreatment with GA_{4+7} plus BA regardless of the concentration. However, that of 'Bel Air' was enhanced only by 50 ppm GA_{4+7} plus BA, and 'Bright Parrot' was not affected by any concentration of GA_{4+7} plus BA. Spay with fluoridone (putative inhibitor of ABA biosynthesis) somewhat extended longevity of the whole plant and individual flowers of 'Bright Parrot', and TIBA (auxin transport inhibitor) did the opposite, suggesting possible mechanisms of flower senescence in 'Bright Parrot'. This study demonstrates that different senescence symptom of tulip flowers may involve different mechanisms of hormonal regulation and that sprays with GA_{4+7} plus BA can be useful to enhance postproduction quality in wilting-or wilting-abscission-type tulip flowers.