

Title Lysophosphatidylethanolamine spray application improves fruit colour and accumulation of anthocyanin in 'Cripps Pink' apples

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Abstract

The effects of various concentrations and number of lysophosphatidylethanolamine (LPE) sprays on fruit colour development, accumulation of anthocyanins and polyphenolic compounds of 'Cripps Pink' apples were investigated. The trees were sprayed with an aqueous solution containing 125, 250 and 375 mg·L⁻¹ of LPE in a commercial orchard in Carmel, Perth Hill, Western Australia. The treatments were applied approximately four and two weeks prior to anticipated commercial harvest. Fruit colour development, concentration of total anthocyanins and polyphenolic compounds in this cultivar were significantly enhanced with the application of two sprays of LPE (125 mg·L⁻¹, at two and four weeks before commercial harvest) or single spray (250 mg·L⁻¹, at four weeks anticipated to commercial harvest) as compared to control. Polyphenolic compounds especially cyanidin 3-*O*-galactoside, quercetin glycosides and also individual quercetin glycosides such as quercetin 3-*O*-xyloside, quercetin 3-*O*-arabinoside and quercetin 3-*O*-rhamnoside were increased in fruit treated with the lower concentration of LPE (125 and 250 mg·L⁻¹) with double and single spray, respectively. In conclusion, two sprays (at two and four weeks anticipated to commercial harvest) of LPE (125 mg·L⁻¹) or 250 mg·L⁻¹ (at four weeks before harvest) effectively enhanced fruit colour development through accumulation of total anthocyanins and polyphenolic compounds in 'Cripps Pink' apple skin.