

## Abstract

Effects of 1-methylcyclopropene (1-MCP), 2-chloroethyl phosphonic acid (ethephon), and methyl jasmonate (MeJA) on production of aroma volatile compounds and ethylene by 'Delicious' and 'Golden Delicious' apples [*Malus sylvestris* (L.) Mill. var. *domestica* (Borkh.) Mansf.] during ripening were investigated. Forty-four volatile compounds in 'Delicious' and 40 compounds in 'Golden Delicious' were detected. Among volatiles classified as alcohols, esters, ketones, aldehydes, acetic acid, and  $\alpha$ -farnesene, esters were the most prevalent compounds, followed by alcohols. Aroma volatile production was high in untreated controls and ethephon treatment. Volatile production by 1-MCP-treated fruit was lower compared with untreated controls throughout the evaluation period. The impact of MeJA application on volatile production was cultivar dependent. The combination of ethephon with MeJA reduced volatile production by 'Delicious' compared with ethephon only, but this treatment combination stimulated volatile production by 'Golden Delicious' with the exception of esters. In general, the effect of MeJA on volatile production was related to the effect of MeJA on internal ethylene concentration. The results suggest that the effect of MeJA on aroma volatiles in apple fruit may be mediated by ethylene. Furthermore, the effect of MeJA on volatiles may depend on the growth stage of the fruit when treated with MeJA.