Title Ethylene and wine grape berries: metabolic responses following a short-term postharvest treatment

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Abstract

Even though grape berries are classified as non-climacteric fruit, they respond to exogenous ethylene treatments performed in the field (at veraison stage) or after harvest. Postharvest treatments with gaseous ethylene (1,000 ppm for 36 h) on 'Sangiovese' (red-skinned wine grape variety) were effective in inducing marked changes in skin composition considering in particular polyphenols and, more specifically, anthocyanins that appeared to be positively affected at the end of the treatment. The ethylene-induced changes in berry metabolism resulted in a modified composition of the wine where aroma compound (C13, esters, phenols) concentration and ratio of the free/glycosylated aroma compounds were higher than those detected in the wine obtained from untreated berries. These results indicate that grape berries respond to ethylene treatments also after detachment and that the gaseous hormone could be used as postharvest elicitor to improve quality of the wines.