

**Title** Ethylene and grape berry ripening  
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### **Abstract**

**Purpose of the review:** The involvement of ethylene in fruit ripening has been the subject of intensive molecular and biochemical studies over the last 20 years. Whereas new methods and new genes are being discovered, the differences between climacteric and non-climacteric fruit seem to decrease. This article reviews recent studies that have reported potential roles for ethylene signals in grape berry ripening.

**Main findings:** Ethylene seems to be involved in some changes that occur during grape berry ripening, the final step of berry development. The whole ethylene production pathway seems activated at the inception of the grape berry ripening, the veraison. Treatment with exogenous ethylene stimulates the long-term expression of genes related to anthocyanin synthesis. Ethylene signals are also involved in the regulation of vascular fluxes and acid content, and may also be involved in some steps of aroma production, modulated by alcohol dehydrogenases.

**Directions for future research:** These findings could help to further resolve the differences between climacteric and non-climacteric fruit. In the future, whole genome sequencing and computer analyses will provide new tools to complete our knowledge of the involvement ethylene in the ripening of these two categories of fruit. This knowledge is crucial with respect to the economic importance of fruit ripening and preservation.