Abstract

The Sistan Ruby grape is the earliest grape cultivar in Iran country and its product is harvested in late May and early May per year. The premature of ruby grape is a desirable trait, because the product is harvested before the start of the 120-day, warm and dry winds and severe heat of Sistan. In this study, the expression pattern of *Chalcone Synthase* and *ABA-8Hydroxelase* genes as transcription factors involved in the prematurity process of Ruby Sistan grape cultivar were investigated by using leaf samples of early cultivars (Red Ruby and White Ruby) and late cultivars (Fakhri and Cheshm-e-gavi (i.e. cow's eye)) and Sangi intermediate cultivar (i.e. stony cultivar) as control treatment were studied in two stages of development of grape cluster (filling and ripen the berries) using Real-Time PCR method. The results of the expression changes of the studied genes for both genes showed a meaningful expression pattern in early cultivars compared to late cultivars in the stages of development of grape cluster. The findings indicated that the *ABA-8 Hidroxelase* gene was a transcription factor involved in the early ripening of the Sistan Ruby grape cultivar, and the *Chalcone Synthase* gene played an important role in ripening and changing the color of the berries.

Key words: *Vitis vinifera*, Transcription Factors (TFs), Early ripening, RT-PCR

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