Key phenolic compounds in the pulp of new red-fleshed table grape hybrids: anthocyanins and flavonols

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Abstract

The cultivated area of table grapes worldwide has experienced a paramount increase over the last two decades. In this current scenario, traditional varieties are being replaced by new cultivars that prioritize a profitable and sustainable agriculture, while satisfying consumer demands. It is widely recognized that wine varieties, especially those with red berry flesh, are renowned for their high antioxidant capacity and phenolic compounds, which promote health. Recently, this topic has also gained significance in table grape breeding programs. The main objective of this work is to compare new hybrids of table grape (Alicante Bouschet cv. × Itumfifteen cv.) regards to their pulp phenolic compounds content. Three selections of new hybrids Non-Coloured Flesh (NCF) and Total Coloured Flesh (TCF) were analyzed for their individual phenolic compounds (phenolic acids, stilbenes, flavonols, and anthocyanins) during two consecutive seasons 2022 and 2023. The new TCF hybrids showed 2.9-fold higher flavonols in the berry pulp compared to NCF hybrids. Moreover, the anthocyanins content in the berry pulp of TCF grapes reported to be 20-fold higher than those of NCF hybrids. As expected, phenolic acids and stilbenes, were significantly enhanced in TCF hybrids compared to NCF hybrids. The presence of red berry flesh in table grapes not only adds a new characteristic to the market, this new cultivars are genetically enriched in healthy promoting compounds.

Keywords: *Vitis vinifera*, teinturier grapes, polyphenols, malvidin, kaempferol.