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THE GRAPEVINE TRANSCRIPTOME: BERRY RIPENING AND WITHERING

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Grapevine (*Vitis vinifera* L.) berries undergo considerable physical and biochemical changes during ripening and withering processes.

The main known changes are the chlorophyll degradation, the softening of the berry, the exoses metabolism in the vacuole, the total volume increase, the organic acid catabolism, the appearance of the skin colour (in coloured varieties) and the production of aromas. The withering process is characterized by berry dehydration and an increase in sugar concentration, enriching the wine with higher alcoholic content and particular flavour properties. The winemaking of withered berries is a practise commonly applied to Amarone and Recioto production.

The molecular processes that occur during withering are still poorly understood, therefore detailed transcriptomic analysis of post-harvest grape berries using microarray can be applied to identify the genes involved in a such biological process to select markers that can be used to follow the drying process.

The grapevine transcriptome of berries of *Vitis vinifera* cv. Corvina (red variety, clone 48), sampled during 2006 season covering seven stages from pre-veraison to complete off-plants withering, was analysed using a 25,471-gene chip, named GrapeArray1.2. Expression data were subject to statistical analysis., ripening and withering genes were clustered and grouped into metabolic pathway. This experiment has made a significant contribution to understanding the molecular basis of grape berry withering and may help to identify useful markers for withering processes.