Correlation between seasonal variations and carbohydrate metabolism in a São Francisco river valley vineyard

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The irrigated agriculture at the São Francisco River Valley, Northeast Brazil, shows an increasing production of grapes for winery. Among the wines produced the one obtained from *Vitis vinifera* L., cultivar Petite Syrah, stands out due to its adaptation to the climatic conditions of the region. Little is known, however, about carbohydrates metabolism of vines cultivated in this region. The objective of this work was to evaluate the correlation between weather conditions and sugar metabolism during two consecutive growing seasons. The experiment was carried out at Embrapa Semi-Árido and at Vitivinícola Santa Maria, respectively located at Petrolina and Lagoa Grande, Pernambuco State- Brazil. Weekly, from January to December of 2003, leaves were collected and assessed for reducing sugars (RS), total soluble sugars (TSS) and starch contents, as well as for acid (AI) and neutral invertases (NI). The results indicate that only RS content and both AI and NI activities in Petite Syrah vine leaves were positively correlated to maximum and mean temperatures and radiation, and only NI was correlated to insolation. Invertases activities are highly correlated to number of days after pruning (DAP), indicating correlation to phenological phases. On the other hand, TSS content was negatively correlated to minimum temperature and number of DAP and starch did not correlate with any of the weather nor phenological parameters.