

THE INFLUENCE OF CLIMATIC CONDITIONS ON THE PHENOLIC COMPOSITION OF TROPICAL BRAZILIAN WINES

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Variations during the crop are the result of interactions between the grapevine and the edaphoclimatic conditions, in particular, the solar radiation and temperature, which act as photosynthetic mechanisms to increase the concentration of anthocyanins and other flavonoids found in grapes. The Sub-middle São Francisco River Valley, Northeast Brazil, is situated between 8° and 9° south latitude, possesses a significant intensity of solar light and a tropical semi-arid climate with intra-annual variability and low rainfall. The tropical Brazilian wines prepared from Cabernet Sauvignon, Marselan, Syrah, and Tempranillo grapes that were grown over different rootstocks in two consecutive harvests were evaluated to identify the effects of climatic conditions on the phenolic composition. Spectrophotometric analysis was used to determine the phenolic groups, and chromatographic analysis was performed to determine the flavonols and stilbenes. The data obtained and the climatic records were subjected to multivariate analysis, which demonstrated that the 2010/1 harvest exhibited superior results for the phenolic composition of the wines. This result was likely due to the low amount of rainfall during the harvest, although the 2009/2 harvest provided better climatic conditions than 2010/1 harvest. The differences illustrate the effects of the amount of rainfall on the phenolic compounds. Furthermore, an interrelationship was found between the rootstock and the genetic conditions of the cultivars, especially in the 2009/2 harvest, with irregular climatic conditions.