Influence of Harvest Date and Rootstock on Physico-Chemical Characteristics of Grape Juices Elaborated in Tropical Semi-Arid Region of Brazil

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Abstract

Fruit juices are products defined as liquids obtained by extraction of ripe fruit, by means of adequate technological processes. The climate, through elements of air temperature, rainfall, solar radiation and relative humidity, can influence strongly the phenological phases of the vines, consequently the development and growth of the plants. In the tropical semi-arid region of Northeast Brazil, vines can develop all the time, because the climate provides a high mean temperature, solar radiation and water availability for irrigation and grapes present different chemical characteristics according to the harvest date. The vigor of the rootstock can strongly influence the vine growth and grape quality.

Given the high potential of the region to produce grapes, even though located in tropical semi-arid conditions, this work aimed to evaluate the influence of the harvest date and rootstock on the grape juice quality elaborated from two *Vitis labrusca* cultivars, BRS Cora (Muscat Belly A x H 65.9.14) and Isabel Precoce, in March and September 2010. The plants were located at the Embrapa Tropical Semi-Arid experimental area in Petrolina, Pernambuco State, Brazil, conducted in pergola system, grafted on rootstocks IAC 572 Jales (*Vitis caribaea* x 101-14 Mgt) and Paulsen 1103, irrigated by drip. The grapes were harvested in the morning from marked plants and then transported to the Laboratory of Enology of Embrapa, kept in cold storage at 10°C to reduce the field heat for 24 hours. Grape juices were elaborated by using water vapour extraction, with temperature and extraction time controlled, at 75-85°C and 60 minutes respectively. The following determinations were performed in triplicate on the grape juices: density, total soluble sugars expressed in °Brix, total titratable acidity alcohol content, pH, volatile acidity, free and total sulphur dioxide, total polyphenol index (I-280), colour index, total anthocyanins and tonality. Results showed that the highest concentrations of °Brix, total polyphenol index (I-280), anthocyanins and tonality were obtained in September. No differences were observed with the rootstocks.

Keywords: *Vitis labrusca*; grape; chemical characteristics; phenolic compounds.