

## DEVELOPMENT OF METHODOLOGY FOR THE DETERMINATION OF ORGANIC ACIDS IN MUST, GRAPE JUICE AND WINE BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

Luiz Cláudio Correa<sup>1</sup>, Aline C. T. Biasoto<sup>1</sup>, Giuliano E. Pereira<sup>1,2</sup>, Ana Cecília P. Rybka<sup>1</sup>, Brazilian Agricultural Research Corporation - <sup>1</sup>Embrapa Tropical Semi-arid BR 428, Km 152, Zip code 56302-970. Petrolina - PE, Brazil; <sup>2</sup>Embrapa Grape & Wine.

Organic acids are important in grape products, producing a pleasant sourness, collaborating with the chemical and microbiological stabilization and equilibrium and in maintenance of the grape juice and wine colors. The aim of this study was to develop a simple and fast HPLC method for the detection and quantification of tartaric, malic, ascorbic, lactic, acetic, citric and succinic acids in must, grape juices and red and white wines. The samples were prepared by dilution in the mobile phase (1:4), filtered through a 0.45 $\mu$ m membrane and injected in triplicate (10 $\mu$ L). The mobile phase consisted of KH<sub>2</sub>PO<sub>4</sub> (0.025M, pH2.6) and H<sub>3</sub>PO<sub>4</sub>, and the flow rate was 0.6mL.min<sup>-1</sup> (308k). The wavelengths used for absorption were 250nm for ascorbic and 210nm for the other acids, and the run time was 15min. For linearity, the R<sup>2</sup> was between 0.9984 and 0.9998, the lowest detection limit being 0.031mg.L<sup>-1</sup> for ascorbic acid and the highest 3.595mg.L<sup>-1</sup> for citric acid. The coefficients of variation for the tests of repeatability and intermediate precision ranged from 0.51 to 3.33% and from 0.74 to 3.11%, respectively. The recovery of the compounds studied was between 94.3 and 100.6%. In general, the sample with the highest acid content was that of grape juice, with 11176mg.L<sup>-1</sup> of total acid. Tartaric acid showed the highest values in the samples evaluated and was found at levels of up to 6210mg.L<sup>-1</sup> in the beverages. The validation process confirmed the efficiency of the method for the quantitative analysis of organic acids in musts, grape juices and wines.