

DEVELOPMENT AND VALIDATION OF METHODOLOGY FOR THE DETERMINATION OF SUGARS IN MUST, GRAPE JUICE AND DIFFERENT TYPES OF WINE

Luiz Cláudio Correa¹, Aline C. T. Biasoto¹, Paula Tereza de S. e Silva¹, Giuliano E. Pereira², Ana Cecília P. Rybka¹. Brazilian Agricultural Research Corporation - ¹Embrapa Tropical Semiárid; ²Embrapa Grape & Wine/Tropical Semiárid, BR 428, Km 152, Zip code 56302-970. Petrolina-PE, Brazil.

Sucrose is the main sugar translocated from leaves to fruit in vines, but glucose and fructose predominate in grape berry at all developmental stages. After sucrose inversion, the glucose can penetrate quicker to the metabolic pathways. Fermentation is carried out by different types of yeast, which consume sugars transforming them into alcohol. A method was developed and validated by high performance liquid chromatography to quantify the glucose, fructose and sucrose present in grapes, grape juice and wine. The mobile phase was MilliQ[®] water, the flow rate 0.5mL.min⁻¹, and detection was by refractive index. The must, grape juices, sweet and dry red wines, with and without chaptalization, white and late harvest dessert wines, were analyzed. The recovery of standards was between 80.44 and 108.22% for all samples and sugars analyzed, validating the method. Repeatability (CV%) was 0.68% for sucrose, 2.93% for glucose and 3.36% for fructose, and the intermediate precision ranged from 1.42 to 2.39%. The quantification curves for the three sugars analyzed were from 25-1600mg.L⁻¹, with R² ranging from 0.9997 to 0.9999. The sweet red wine without chaptalization, contained the most sucrose (93,01g.L⁻¹), while the dessert wine contained 255mg.L⁻¹. Sucrose was not detected in the must and grape juices (detection limit 4.77mg.L⁻¹), but these samples stood out from the others for the fructose and glucose contents. The method was shown to be precise and accurate for the quantification of sugars in musts, grape juices and wines.