STRUCTURAL CARACTERIZATION OF POLYSACCHARIDES PRESENT IN THE BLACKBERRY WINE

Caillot, A. R. C¹; Bezerra, I. L¹; Santana-Filho, A. P¹; Sassaki, G. L¹

Biochemistry and Molecular Biology Department, Federal University of Parana, Curitiba, Brazil.

Introduction: Blackberry wine is recognized as a natural source of essential minerals and many bioactive phytochemicals that can play an important role in health promotion and disease prevention. Beyond be used in folk medicine for the treatment of anemia as a source of iron, essential minerals and antioxidants such as phenolic compounds, anthocyanins and polyphenols. This work aims the chemical characterization of blackberry wine polysaccharides. Methods: The blackberry wine were precipitated by addition of EtOH and centrifuged. The precipitate was dialyzed obtained polysaccharide fraction (PVA). These were frozen and then allowed to thaw at room temperature and centrifugation, resulting in fraction soluble (PVA-S) and insoluble (PVA-I). The fraction PVA-S was hydrolyzed with TFA at 100°C/14h, then the solution was evaporated, and the residue was dissolved in D₂O and submitted the analysis of the RMN. After the sample was dried and submitted the reduced with NaBH₄ yielding alditols, which were acetylated in AC₂O-pyridine at room temperature for 12h. The resulting alditol acetates were analyzed by GC–MS and uronic acid contents were determined using the method colorimetric. Results: The monosaccharide composition shown Man (31.07%), Glc (11.9%), Gal (17.9%), Ara (11.64%), Rha (5.22%), Xyl (2.65%), Fuc (1.3%) and GalpA (18.3%). Based on sugar composition the ¹H/¹³C HSQC shown signals at δ (C1/H1) 103.2/4.47, (C3/H3) 80.1/3.72 and (C4/H4) 68.7/4.14. These signals are characteristic of (1→3)-linked β-D-Galp units present in arabinogalactan II. Beyond, at δ (C1/H1) 109.2/5.27 and (C1/H1) 101.5/5.15 were attributed to α-L-Araf and of the α-L-Rhap, the latter was confirmed by the deoxy (C6/H6) at δ 16.9/1.25. The signal at δ 99.03/4.9 attributed to of GalpA units as well as at δ 79.2/4.4, which correspond to (1→4)-linked α-D-GalpA units (1→6)-linked β-D-mannan was observed at δ 99.5/5.01 and 65.3/3.76; 3.98. Conclusion: These results suggest with the blackberry wine contained pectic polysaccharides and mannan.

Key words: Polysaccharides. Mannan. Arabinogalactan II.