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Chemical characterization of fructo-oligosaccharides from *Stevia rebaudiana* (Bertoni) roots

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Stevia rebaudiana (Bertoni) is widely studied due to foliar steviol glycosides. Recently, fructan-type polysaccharides were isolated from its roots. Fructans are reserve carbohydrate with a linear structure consisting of (2→1)-linked β-D-fructofuranosyl units, used in food industry as dietary fiber, prebiotic compound, replacement for fat and sugar and texturizing agent. Lyophilized and milled *S. rebaudiana* adventitious roots were extracted with water under reflux conditions at 80°C for 5 h. The aqueous extract was filtered, concentrated in a rotary evaporator and precipitated with ethanol P.A. 1:3 (v/v). The ethanolic supernatant was analyzed by off-line ESI/MS in positive mode and the monosaccharide composition was determined by GC/MS after hydrolysis and derivatization (oxime-silylated) of the polysaccharide. The yield of the ethanolic fraction was 24% (dry weight). The off-line ESI/MS mass spectrum showed peaks corresponding to fructan-like polysaccharides that produced characteristic peaks with potassium adducts [M + K]⁺. The peaks at m/z 544, 706, 868, 1030, 1192 and 1354 corresponding fructo-oligosaccharides (FOS) molecules with degree of polymerization (DP) ranging from 3 to 8, respectively. From the monosaccharide composition by CG/MS experiment was possible to identify only molecules of fructose and glucose compared with mass spectrum and retention time of glucose and fructose standard analyzed at the same conditions. In the chromatogram was possible identify majority peaks corresponding to fructose units at retention time 8.6, 9.5 and 9.8 min. The data allowed the identification of FOS molecules with low DP from ethanolic fraction of *S. rebaudiana* roots.

Biography

Regina Aparecida Correia Gonçalves has completed her PhD in Organic Chemistry from State University of Campinas. She has experience in Chemistry with emphasis on Biocatalysis and Biotechnology of Medicinal Plants, acting on the following topics: Biocatalysis, production of primary and secondary metabolites in plant cell cultures, isolation and identification of bioactive substances of natural origin as fatty acids and polysaccharides.

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