

## STRUCTURE OF GUM EXUDATE POLYSACCHARIDES FROM THE TRUNK AND FRUIT OF THE PEACH TREE (*PRUNUS PERSICA*)

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The gum exudate polysaccharides from the trunk (PPNA) and fruit (PPNF) of the peach-tree consisted of Ara, Xyl, Man, Gal, and uronic acids (Glc<sub>p</sub>A:4-Me-Glc<sub>p</sub>A 2:1 for PPNA) in a 36:7:2:42:13 and 32:13:2:33:20 molar ratio, respectively. NMR and methylation analyses showed many similarities, characterizing them as acidic arabinogalactans. Methylation analysis of PPNA showed nonreducing end- (20%), 3-O- (6%), and 5-O-substituted (14%) units of Araf and nonreducing end-units of Xyl<sub>p</sub> (13%). The Gal<sub>p</sub> units were 3,6-di-O- (19%) and 3,4,6-tri-O-substituted (14%). Its <sup>13</sup>C-NMR spectrum had C-1 signals at  $\delta$  107.5-109.5, a main one at  $\delta$  103.2 ( $J_{C-1/H-1} = 160$  Hz), at  $\delta$  101.5 ( $J_{C-1/H-1} = 178$  Hz), and at  $\delta$  100.7 ( $J_{C-1/H-1} = 173$  Hz), from  $\alpha$ -L-Araf,  $\beta$ -D-Gal<sub>p</sub>,  $\beta$ -Ara<sub>p</sub> (or  $\alpha$ -D-Xyl<sub>p</sub>), and  $\alpha$ -D-Man<sub>p</sub>, respectively. A controlled Smith degradation of PPNA followed by partial hydrolysis under stronger conditions gave rise a polysaccharide (PPNAS60-20% yield), which had Gal as its major component (85%). Methylation analysis showed 45% of 6-O-substituted Gal<sub>p</sub> units arising from its core. Its <sup>13</sup>C-NMR spectrum had a C-1 main signal at  $\delta$  103.8 from  $\beta$ -D-Gal<sub>p</sub> units. Two controlled Smith degradations of PPNA gave a polysaccharide (PPNAS2-0.45% yield) that contained 34% of 3-O-substituted units of Gal<sub>p</sub>, indicating the presence of (1 $\rightarrow$ 3)-linkages.

Supported by CAPES, PRONEX-Carbohidratos, Fundação Araucária.