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Characterization of Two Novel Polysaccharides Having Immunological Activities from the Root of *Panax ginseng**

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Two acidic polysaccharides, called ginsenan S-IA and ginsenan S-IIA, were isolated from the root of *Panax ginseng* C. A. MEYER. They were homogeneous on electrophoresis and gel chromatography, and their molecular masses were estimated to be 5.6×10^4 , and 1.0×10^5 , respectively. Ginsenan S-IA is composed of L-arabinose : D-galactose : D-galacturonic acid in the molar ratio of 8 : 8 : 1, and ginsenan S-IIA is composed of L-arabinose : D-galactose : D-glucose : D-galacturonic acid in the molar ratio of 15 : 10 : 2 : 5, in addition to small amounts of O-acetyl groups. About a half (ginsenan S-IA) and about a quarter (ginsenan S-IIA) of the hexuronic acid residues exist as methyl esters. Reduction of carboxyl groups, methylation analysis, nuclear magnetic resonance and periodate oxidation studies indicated that their structural features include mainly α -1,5-linked L-arabino- β -3,6-branched D-galactan type structural units. Both polysaccharides showed remarkable reticuloendothelial system-potentiating activity in a carbon clearance test and pronounced anti-complementary activity. These substances are the first examples having a relatively high content of both α -3,5-branched L-arabinose and β -1,4-linked D-galactose units among the acidic arabinogalactans with activities on phagocytosis and anti-complement.

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