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The Major Pectic Arabinogalactan Having Activity on the Reticuloendothelial System from the Roots and Rhizomes of *Saposhnikovia divaricata**

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The major acidic polysaccharide, named saposhnikovan A, was isolated from the roots and rhizomes of *Saposhnikovia divaricata* by the extraction with hot water and the precipitation with cetyltrimethylammonium bromide followed by ion-exchange chromatography with DEAE-Sephadex A-25 (acetate) and gel chromatography with Sephadex G-50 and Sephacryl S-300. The purified polysaccharide gave a single band on PAGE and gave a single spot on cellulose acetate membrane electrophoresis and a single peak on gel chromatography.

Saposhnikovan A is composed of L-arabinose : D-galactose: D-galacturonic acid in the molar ratio of 6 : 15 : 10, and its molecular weight was estimated to be 54000. About 35% of the D-galacturonic acid residues exist as the methyl esters.

The results of methylation analysis of the original polysaccharide and the carboxyl-reduced derivative and ^{13}C -NMR spectrum suggested that the minimal unit of saposhnikovan A is composed of six terminal α -L-arabinofuranose, six α -1,5-linked L-arabinofuranose, twenty-seven β -1,3-linked D-galactopyranose, three 3,6-branched β -D-galactopyranose, seventeen α -1,4-linked D-galactopyranosyluronic acid, one 2,4-branched α -D-galactopyranosyluronic acid and two 3,4-branched α -D-galactopyranosyluronic acid residues. In addition, the controlled Smith degradation revealed the presence of a backbone chain composed of α -1,4-linked D-galacturonan. Some of the units in the backbone carry arabinogalactan side chains at positions 2 and 3. The side chains are mainly composed of β -1,3-linked D-galactopyranose units containing 3,6-branched units, and α -1,5-linked L-arabinofuranosyl residues occupy terminal positions.

The effect of saposhnikovan A on a reticuloendothelial system (RES) was demonstrated by the *in vivo* carbon clearance test. When administered i.p. (50 mg/kg), the phagocytic indices of saposhnikovan A, zymosan (a positive control) and control (blank) were 0.2367 ± 0.0427 , 0.1713 ± 0.0361 and 0.0778 ± 0.0108 . Thus the value was remarkably increased, suggesting powerful activation of RES by i.p. injection of saposhnikovan A. Saposhnikovan A is a new structural type of polysaccharide having remarkable activity on the RES.

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