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**Characterization of Two Polysaccharides Having Activity  
on the Reticuloendothelial System from the  
Root of *Glycyrrhiza uralensis*\***

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Two polysaccharides called glycyrrhizans UA and UB, were isolated from the root of *Glycyrrhiza uralensis* by hot water extraction followed by treatment with cetyltrimethylammonium bromide, gel chromatography on Sephacryl S-300 and affinity chromatography on Con A-Sepharose. Each polysaccharide gave a single band on PAGE, and gave a single peak on gel chromatography. They showed significant reticuloendothelial system-potentiating activity in a carbon clearance test.

Glycyrrhizan UA is composed of L-arabinose: D-galactose: L-rhamnose: D-galacturonic acid in the molar ratio of 20:14:1:3, and glycyrrhizan UB is composed of L-arabinose: D-galactose: D-glucose: L-rhamnose: D-galacturonic acid in the molar ratio of 12:10:1:10:20, in addition to small amounts of *O*-acetyl groups (2.9% in UA and 2.5% in UB) and peptide moiety. About 10% (UA) and 35% (UB) of the D-galacturonic acid residues exist as the methyl esters. Their molecular masses were estimated to be  $6.9 \times 10^4$  and  $1.07 \times 10^4$ .

Chemical and spectroscopic studies indicated that the minimal unit of glycyrrhizan UA is composed of twenty-two terminal  $\alpha$ -L-arabinofuranose, twenty-six  $\alpha$ -1,5-linked L-arabinofuranose, four terminal  $\alpha$ -L-arabinopyranose, eight  $\alpha$ -1,3-linked L-arabinopyranose, one terminal  $\beta$ -D-galactopyranose, eight  $\beta$ -1,3-linked D-galactopyranose, eight  $\beta$ -1,4-linked D-galactopyranose, three  $\beta$ -1,6-linked D-galactopyranose, twenty-two  $\beta$ -3,6-branched D-galactopyranose, one  $\alpha$ -1,2-linked L-rhamnopyranose, one  $\alpha$ -2,4-branched L-rhamnopyranose, six  $\alpha$ -1,4-linked D-galactopyranosyluronic acid and three  $\alpha$ -2,4-branched D-galactopyranosyluronic acid residues. The minimal unit of glycyrrhizan UB is composed of the same four, four arabinofuranose, one, three arabinopyranose, three, two, one, one, two galactopyranose, six, four rhamnose, eighteen and two galacturonic acid residues as those in glycyrrhizan UA, in addition to one  $\beta$ -2,4-branched D-galactopyranose and one terminal  $\alpha$ -D-glucopyranose residues.

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\* 本報告は *Chem. Pharm. Bull.*, 38, 1667—1671 (1990) に発表.