

[Chem. Pharm Bull., 34, 270 (1985)]

**A Glucomannan from the Tubers of *Dioscorea japonica* Thunb.**

TADASHI KIHU CHIHIRO HARA, SHIGEO UKAI\*

A polysaccharide,  $[\alpha]_D^{20} -35.8^\circ$  in water, was isolated from the tubers of *Dioscorea japonica* THUNB. The polysaccharide was homogeneous as judged by ultracentrifugal analysis and gel chromatography. It was mainly composed of D-mannose and D-glucose in a molar ratio of 6:1, and contained 8.8% O-acetyl groups. Its molecular weight was estimated to be  $3.7 \times 10^5$  by gel chromatography. The O-acetyl groups were located at position 2, at position 6, at position 3, and positions 2 and 6, of some of the mannopyranosyl residues. From the results of methylation analysis, periodate oxidation, Smith degradation, and carbon-13 nuclear magnetic resonance spectroscopy, it was concluded that the polysaccharide, a linear glucomannan, was composed of  $\beta$ -1 $\rightarrow$ 4 linked D-aldohexopyranosyl units.

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**Anti-inflammatory Effect of the Polysaccharide from the Fruit Bodies of *Auricularia* Species.** TADASHI KIHU, MASAHIRO SAKAI, SHIGEO UKAI\*, CHIHIRO HARA, YUSHIRO TANAKA

The acidic polysaccharide (U-3-A),  $[\alpha]_D^{20} -8.7^\circ$  in 0.05 M NaOH, was isolated from *Auricularia* species (Chinese name: Yu er). U-3-A was homogeneous, and its molecular weight was estimated to be 2,400,000. It was composed of glucuronic acid, xylose, mannose, and glucose in the molar ratio of 1.0:1.9:2.9:1.8, and contained O-acetyl groups (0.3%) and 1-carboxyethylidene groups (0.3%). U-3-A (given i.p.) showed the marked anti-inflammatory effect on both carrageenan-induced edema and hyperalgesia in scald-induced, edematous lesions in the hindpaws of rats. The anti-inflammatory potency of U-3-A was stronger than that of the crude polysaccharide(U-3-EP) and phenylbutazone.

[Tetrahedron Lett., 26, 1735 (1985)]

**Flexibly Capped  $\beta$ -Cyclodextrins by the Hydrogen-Bonded Nucleic Acid Base Pair. The pH-Control of Binding Ability by an On-Off-Switched Capping.** KATSUYUKI NAGAI, SHIGEO UKAI\*, KENJI HAYAKAWA, KEN KANEMATSU

Preparation and characterization of flexibly capped  $\beta$ -cyclodextrins by the hydrogen bonded nucleobase pair (adenine-thymine) were described. The double functionalization of  $\beta$ -CD was accomplished by the sequential treatment of ditosylated  $\beta$ -CDs (AD-, AC-, and AB-isomers) with 9-(3-mercaptopropyl)-adenine and 1-(3-mercaptopropyl)thymine. The association constants of these compounds and 1-adamantanecarboxylate were measured at pH 7.0 and pH 11.0 by UV spectroscopy. These results indicate that the binding ability of  $\beta$ -cyclodextrins is possibly controlled by the pH change using the biologically important complementary nucleic acid base-pairing.