

[Carbohydr. Res., 148, 115 (1986)]

X-Ray Diffraction Study on (1→3)- α -D-Mannan Dihydrate.

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The conformation of a fungal (1→3)- α -D-mannan was studied by X-ray diffraction measurements on fiber diagrams. Annealing the D-mannan film in isopropyl alcohol aqueous solution at 180° or more, under tension in a sealed bomb, improved much the crystallinity. The D-mannan molecule crystallises in the monoclinic system, space group P2₁, with lattice constants, $a=11.29$, $b=18.12$, c (fiber axis) = 8.40Å and $\gamma=79.17^\circ$. The helical parameters, $n=2$ and $h=4.20\text{Å}$, suggested that the chain conformation is an fully extended ribbon-like structure. The conformational similarities of the D-mannan to (1→3)- α -D-glucan and to (1→4)- β -D-mannan are discussed.

[Carbohydr. Res., 156, 189 (1986)]

A Minor, Protein-Containing Galactomannan from a Sodium Carbonate Extract of *Cordyceps sinensis*.

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A water-soluble, minor, protein-containing galactomannan (CT-4N), $[\alpha]_{\text{D}}-29.6^\circ$, isolated from a 5% sodium carbonate extract of *Cordyceps sinensis*, showed a homogeneous pattern in gel filtration and one spot in glass-fiber paper-electrophoresis. The molecular weight was estimated by gel filtration to be ~23,000. It was mainly composed of D-mannose and D-galactose in the molar ratio of 3:5, and contained a small proportion of protein. From the results of methylation analysis, Smith degradation, stepwise hydrolysis, and ¹³C-NMR spectroscopy, it was concluded that the polysaccharide has a highly branched structure, and is composed of (1→6)- and (1→2)-linked α -D-mannopyranosyl residues in the main chain.

[J. Chromatogr., 369, 415 (1986)]

Simultaneous Determination of the Alditol Acetate Derivatives of Amino and Neutral Sugars by Gas-Liquid Chromatography.

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Amino and neutral sugars (D-GlcNH₂, D-ManNH₂, D-GalNH₂, L-Rha, L-Fuc, D-Rib, L-Ara, D-Xyl, D-Man, D-Gal, D-Glc) were converted into alditols with sodium borohydride, then the amino group of the alditols of amino sugars was methylated with formaldehyde and sodium cyanoborohydride. The N-methylated alditols thus obtained were acetylated together with neutral alditols in the mixture of acetic anhydride and pyridine. The derivatives of the amino and neutral sugars were separated satisfactorily on a glass column packed with 2% EGSS-X on Gas-Chrom Q.