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NOTE

Chemical Structure of *Cassia auriculata* Linn. Seeds Polysaccharide

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Acid hydrolysis of fully methylated water soluble *Cassia auriculata* Linn. seeds produced certain important medicinal chemicals. On the basis of obtained results a tentative structure has been assigned to the seeds polysaccharide.

Cassia auriculata Linn.[1] belongs to the Family Caesalpiniaceae and found in Northern India and its seeds are used in medicine[2]. Methylation and periodate oxidation studies are presented in the present communication.

Methylation of the polysaccharide: Purified *Cassia auriculata* Linn. seeds polysaccharide (6 g) was subjected to methylation[3] by dissolving in water (100 mL), sodium hydroxide (45%, 50 mL) and dimethyl sulphate (245 mL) in an atmosphere of nitrogen by three successive treatments. The solution was filtered and neutralized (H_2SO_4), then the precipitated sodium sulphate was filtered and aqueous filtrate was extracted with chloroform in a liquid-liquid extracter. The solvent layer was worked up to yield of a glassy mass (3.56 g). The partially methylated compound was further remethylated by Purdie's reagent[4].

Fractionation of the methylated polysaccharide: The methylated polysaccharide (4 g) was purified by fractional dissolution method[5] and methoxyl fractions were estimated by Zeisel's method[6].

Hydrolysis of the methylated polysaccharide: The fully methylated polysaccharide (4.75 g) was hydrolysed by Whistler's method[7].

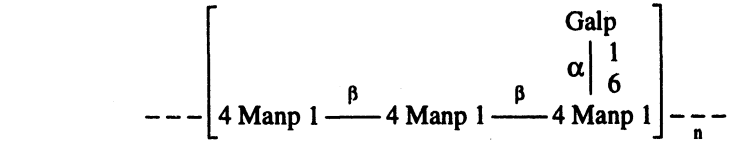
Periodate oxidation of the polysaccharide: The purified polysaccharide (1 g) was carried out by periodate oxidation[8] with sodium metaperiodate.

The water soluble *Cassia auriculata* Linn. seeds polysaccharide was methylated by Srivastava and Purdie's method upon acid hydrolysis of the methylated polysaccharide with sulphuric acid afforded 2,3,4,6-tetra-O-methyl-D-galactose; 2,3,6-tri-O-methyl-D-mannose and 2,3-di-O-methyl-D-mannose were present in 0.95:2:1.05 molar ratio[9].

Thus the formation of 2,3,4,6-tetra-O-methyl-D-galactose indicated that the D-galactose is attached at the non-reducing and in the polymer chain. The linkages between 2,3,6-tri-O-methyl-D-mannose and 2,3-di-O-methyl-D-mannose are linked through (1 → 4)-β-type at the main chain while 2,3,4,6-tetra-O-methyl-D-galactose and 2,3-di-O-methyl-D-mannose are joined by (1 → 6)-α-type at the reducing end of the main polymer chain. Since the molar ratio[10] between

D-galactose and D-mannose was found to be 1:3, therefore every unit indicated four sugar hexose units in the polysaccharide structure.

The periodate oxidation of the polysaccharide with sodium metaperiodate consumed 1.25 moles of periodate and liberated 0.35 moles of formic acid per mole of anhydrohexose unit after 50 h. On the basis of these obtained results a chemical structure (Fig. 1) has been proposed for the water soluble *Cassia auriculata* Linn. seeds polysaccharide.



where Manp = D-Mannopyranose; Galp = D = Galactopyranose

Fig. 1. Chemical structure of *Cassia auriculata* Linn. seeds polysaccharide.

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