FUNCTIONAL PROPERTIES OF A POLYSACCHARIDE THAT IS ISOLATED FROM THE FRUIT OF *CORDIA ABYSSINICA*

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ABSTRACT

Treatment of aqueous extracts of the fruit of *C. abyssinica*, containing 0.25% sodium chloride with three volumes of ethanol produced an acidic polysaccharide with a 2% yield, on a fresh weight basis. With protein content between 2.6% and 4.6%, the polymer contained 0.29% hydroxyproline. Uronic acid content, determined using the m-hydroxydiphenyl method was 9%. Some uronic acid residues along the polymer chain were methyl esterified, with the methoxyl content being 38%. With an ash content of 17% the polymer had a mineral ion content of Ca, 0.3%, Mg, 0.3%, Na, 0.2% and K, 4.8%. The optical rotation of a 0.25% solution was – 50 ^{o}. The molecular weight of the polysaccharide crudely estimated by viscometry was approximately 1 800 000 daltons. Acid and enzymatic hydrolysis, followed by HPLC and TLC analysis, revealed that the polysaccharide consisted of glucose, galactose, mannose, arabinose, xylose, rhamnose, fucose, galacturonic acid and an unidentified sugar. Solutions of the polysaccharide showed pseudoplastic flow behaviour. When suspended in water, the polysaccharide that was precipitated with salt and ethanol formed gels at a concentration of 2% at room temperature and at 4 ^{o}C. Emulsions formed by the polysaccharide at neutral and alkaline pH were less stable than those formed by gum arabic. Emulsion formation was enhanced by increasing the concentration of polysaccharide and the emulsions formed remained stable even under conditions of high salt concentration.