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# HYDRODYNAMIC AND RHEOLOGICAL PROPERTIES OF *IRVINGIA* *GABONENSIS* GUM

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## Abstract

The polysaccharide component of *Irvingia gabonensis* endosperm was isolated and its hydrodynamic and rheological properties investigated. The polysaccharide is an arabinogalactan and contains small amounts of rhamnose, galacturonic acid, glucose and glucuronic acid.

The polysaccharide displayed typical polyelectrolyte behaviour in solution. The intrinsic viscosity at infinite ionic strength, a measure of the hydrodynamic volume of the uncharged polysaccharide molecule, was obtained as 4.9 dl/g. The macromolecules have a semi flexible backbone with a Smidsrod stiffness parameter of 0.085. The polysaccharide exhibited non-Newtonian behaviour at all the concentrations (0.2% to 3.0% (w/v)) investigated. Cox-Merz plots showed that  $\eta(\dot{\gamma})$  and  $\eta^*(\omega)$  were closely superimposable except at low shear rates and higher concentrations, where  $\eta^* > \eta$ . The high  $M_w$  ( $1.56 \times 10^6$  g/mol) and its random coil conformation show *Irvingia gabonensis* polysaccharide has potential for application as thickener.

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