



RHEOLOGICAL, PASTING, THERMAL AND GEL PERMEATION CHROMATOGRAPHIC CHARACTERISTICS OF GUAR GUM ACID HYDROLYSATES

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ABSTRACT

Guar gum was partially hydrolyzed with HCl for 30 (GGH₃₀) and 60 (GGH₆₀) min to obtain its acid hydrolysates. Guar gum and its acid hydrolysates were studied for hydration, pasting, rheological and thermal properties. Acid hydrolysis significantly lowered the intrinsic viscosity and molar mass of the hydrolysates. The steady shear properties of guar gum and its hydrolysate (GGH₃₀) studied at 25°C revealed a shear thinning behavior while GGH₆₀ displayed a nearly Newtonian behavior. Dynamic measurements revealed a typical biopolymer viscoelastic gel behavior for NGG and GGH₃₀. The FT-IR study indicated no structural changes in the hydrolysates as no additional functional groups were added in the molecular structure after acid hydrolysis of the intact guar gum. The differential scanning calorimetry results displayed lowered thermal stability of the hydrolysates relative to its native counterpart. The present study suggested that partial hydrolysates could be used suitably in different food products as a soluble dietary ingredient.
