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Title: 
Physicochemical Properties of Alkali treated kappa-carrageenan.

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Abstract: 
Kappa (κ)-carrageenan was extracted from the seaweed Kappaphycus alvarezii, grown in Fiji, using varying concentrations of potassium hydroxide (KOH) solution: 0.1 to 0.5 M. Increasing KOH concentration increased the yield of κ-carrageenan while the sulfate content, and the viscosity average molar mass decreased. κ-carrageenan solutions exhibited non-Newtonian fluid behavior. For the different alkali (0.1, 0.2, 0.3 & 0.5 M) treated κ-carrageenan, the critical gelling concentration was found to be 1.0, 0.8, 0.7 & 0.6 w/v % respectively at ambient temperature within 24 hrs. The activation energy of the viscous flow was found to decrease for the κ-carrageenan extracted with increasing alkali concentration. Young's modulus was found to increase for the κ-carrageenan gels extracted with increasing alkali concentration up to 0.3 M after which a sharp decline in gel strength was observed. The melting temperature determined from Differential Scanning Calorimetry increased for gels extracted with higher KOH concentration.