Effect of K+, Ca2+ and Na+ on gelling properties of Eucheuma cottonii

Abstract

This study was carried out to elucidate the effect of three types of cation (K+, Ca2+ and Na+) at various concentrations on the gelling properties of untreated Eucheuma cottoni, with the ultimate aim to explore the possibility of utilizing the seaweed in its natural form as gelling agent. Results obtained suggest that E. cottonii also exhibited the dramatic cation specificity of k-carrageenan, in which the dependence of gel strength follows the order: K+ > Ca2+ > Na+. As expected, cations addition exerts adverse effect on the syneresis, water holding capacity and freeze-thaw stability of the seaweed gel. Water holding capcity of the gel is however independent of the increased concentrations of K+($p>0.05$). Storage duration and storage temperature significantly ($p<0.05$) affect the syneresis and water holding capacity of the gel. Among the cations, K+ appears to be better in improving the gel properties of the seaweed.