Influence of potassium hydroxide concentration on the carrageenan functional group composition

Abstract

Potassium Hydroxide treatment of seaweed is one of the common processes in the production of semi-refined carrageenan (SRC) across South-east region. However, potassium hydroxide will influence the properties of the product through the effect on the variation of functional group composition in the carrageenan molecule. Therefore, a study on the influence of potassium hydroxide (KOH) concentration on the functional group composition of kappa carrageenan extracted from seaweed (*Kappaphycus alvarezii*) was conducted. The functional groups investigated were 3,6-anhydrogalactose, ester sulphate, 3,6-anhydrogalactose-2-sulphate and galactose-4-sulphate. To investigate the effect of KOH concentration on the variation of functional groups composition, a set of KOH concentration of 0.01–0.1 M was employed. The SRC powder was produced by spray dryer of alkali-treated seaweed. The SRC powder produced was used for the Fourier transform infrared spectroscopy (FTIR) analysis for identification and determination of the composition of functional groups. The results of the data revealed that there is composition variation in all of the functional groups analysed due to the influence of KOH concentration.