STUDY OF CARRAGEENAN FORMING KINETICS
FROM EUCHEUMA cottonii

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Abstract

Carrageenan is a hydrocolloid compound consist of potassium, sodium, magnesium and potassium sulfate ester with 3,6 anhydrogalactose copolymer. Carrageenan is a seaweed gum obtained by Eucheuma cottonii seaweed extraction with hot water or alkali solution in high temperature.

In trading industry, carrageenan give many benefit such as in pharmacy and food industry as a stabilizer, thickener, gelling agent, additive and suspension maker.

This experiment begin with preparation procedures then followed by extraction procedures. And after that, analyzing reaction result sample weight with Thermo Spectronic. The variable are Reaction temperature, KOH concentration as Reactant. And sampling the reaction product every 10 minutes for 30 minutes.

Carrageenan identification analysis using Spectrofotometry FTIR showed that the type of carrageenan produced from this experiment is Kappa Carrageenan. The effect of KOH concentration is proportional to the rate of Carrageenan forming. In addition, The Reaction Temperature effect to the rate of carrageenan forming is also proportional.

Based on reaction equation \( r_p = k \cdot C_a^n \) obtained the average value of \( n = 1.0784 \) and the reaction rate constant for KOH concentration 6 % are as follow:
a. \( k_{85 \, ^\circ \text{C}} = 0.382691 \, \text{min}^{-1} \)

b. \( k_{90 \, ^\circ \text{C}} = 0.488482 \, \text{min}^{-1} \)

c. \( k_{95 \, ^\circ \text{C}} = 3.333103 \, \text{min}^{-1} \)

**Keyword:** Carrageenan, Seaweed extraction, Hydrocolloid