Physicochemical Properties of Crackers Fortified with Red Seaweed, *Kappaphycus alvarezii* Powder

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Abstract: Seaweeds have been used as food since ancient times mainly in the Asian countries while in the Western countries, they are mainly used as phycocolloids for the food, pharmaceutical, and cosmetic industry. The edible red seaweed, *Kappaphycus alvarezii* is the 5th world's most cultivated seaweed and it is mainly farmed for its source of carrageenan, a gelling agent widely used in many industries. There are limited uses of this seaweed in food although *K. alvarezii* has a significant amount of protein, a high amount of dietary fibre, and minerals. The objective of this study is to develop crackers fortified with *K. alvarezii* powder at various concentrations of 1%, 2.5%, 5%, 7.5%, and 10%. The effects of *K. alvarezii* powder on physicochemical properties of crackers such as colour, water activity, pH, spreadability factor, hardness, and fracturability were investigated. The result indicates that increasing the percentage of *K. alvarezii* powder decreases the L* value, water activity, pH as well as the spreadability of crackers. It shows a decreasing trend in terms of its texture profile whereby higher percentage of *K.alvarezii* decreases significantly ($p<0.05$) the hardness and increases significantly ($p<0.05$) the fracturability of crackers. Overall, it can be concluded that 1% and 2.5% *K.alvarezii* powder added into cracker samples has similar physicochemical properties to control sample.

Keywords: *Kappaphycus alvarezii*, seaweed, crackers, physicochemical properties, phycocolloid