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Extraction of Chlorophyll from Seaweed (*Ulva lactuca*) for Incorporation as A Natural Food Colouring Agent in *Kueh Kaswi*

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Structured Abstract

Background: Colour is an essential attribute of food, roughly indicating the qualitative (freshness) and quantitative (concentration) characteristics of food. Most of the colouring agents used in food products are from synthetic sources. However, long-term exposure to the synthetic colourant may cause adverse effects on health. The natural-based colourant is another option to give food a good appearance without inducing side effects on the health of the consumer. Nowadays, interest in natural food colouring has grown among consumers and it had been shown to possess health-promoting properties. This study was carried out to evaluate the physicochemical properties of the food products incorporated with the natural colourant and to assess the consumer acceptance of the natural colourant from seaweed in the food products.

Methods: Four colourant samples which were synthetic, non-encapsulated seaweed colourant, maltodextrin encapsulated seaweed colourant, and gelatin encapsulated seaweed colourant were analysed. The analysis was separated into two parts which were the analysis of the natural colourant pigment and its application in *kueh kaswi*. The colourant was analysed on the total chlorophyll content, total phenolic content, and antioxidant capacity meanwhile the food product was analysed on the proximate analysis, mineral content, texture profile analysis and sensory evaluation.

Results: The study showed that maltodextrin encapsulated colourant had the highest total phenolic content meanwhile gelatin encapsulated colourant had the highest chlorophyll content and antioxidant capacity. The proximate composition and texture profile analysis showed no significance difference between all samples. The mineral content of natural colourant incorporated food sample contained higher mineral content compared to synthetic colourant sample. All formulations of *kueh kaswi* incorporated with natural green pigment colourant extract from seaweed were acceptable by the consumers which were rated as like moderately.

Conclusion: In conclusion, the findings indicated that natural green colourant from seaweed promotes health benefit due to the presence of bioactive compound. Thus, natural colourant from seaweed can be used as a substitute of synthetic colourant for the application in food product.

Keywords: Natural Colourant, Synthetic Colourant, Seaweed, Chlorophyll

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