

## Intisari

*Dark chocolate* memiliki kandungan polifenol sebesar 8-10 mg ekuivalen asam galat/g, namun polifenol dapat mengalami penurunan hingga 48,06%, selama pengolahan dengan suhu tinggi, sehingga dirasakan perlu menambahkan bubuk *Sargassum* yang kaya polifenol. Selain itu, porsi gula sukrosa dalam formula tinggi dan memberikan sumbangan kalori yang tinggi, sehingga substitusi gula stevia yang rendah kalori sebagai alternatif gula perlu dilakukan. Gula stevia sekaligus dapat digunakan untuk mengurangi rasa amis yang ditimbulkan oleh *Sargassum* sp. Tujuan dari penelitian ini yaitu mengetahui formula optimal dari kombinasi perlakuan bubuk *Sargassum* sp. dan gula stevia yang disukai oleh konsumen serta mengetahui karakteristik produk cokelat batang yang difortifikasi bubuk *Sargassum* sp. Optimasi cokelat optimum ditentukan melalui *Response Surface Method* (RSM) menggunakan rancangan  $2^k$  faktorial (dua faktor masing-masing tiga level), yaitu modifikasi gula stevia dengan level 30%, 60%, dan 90% (b/b gula) serta penambahan bubuk *Sargassum* (1%, 3%, dan 5% b/b bahan) gram. Hasil penelitian menunjukkan kombinasi perlakuan dari formula optimum dari gula stevia sebanyak 30% (35,5 gram) dan bubuk *Sargassum* sebanyak 1% (30 gram). Kandungan total polifenol yaitu sebanyak 0,001 mg dalam bubuk *Sargassum* mampu meningkatkan kandungan polifenol sebesar  $0,54 \pm 0,002$  mg ekuivalen asam galat/g. Karakteristik kimiawi dan fisika cokelat *Sargassum* dan cokelat kontrol tidak berbeda ( $p > 0,05$ ), tidak menimbulkan white spot, namun perbedaan karakteristik sensoris cokelat dapat dideteksi oleh panelis ( $p < 0,05$ ) yaitu pada kuatnya intensitas aroma kakao dan rasa biji kakao sangrai. Respon konsumen terhadap cokelat *Sargassum* positif dan produk dapat disukai oleh konsumen.

Kata kunci: alga coklat, pemanis rendah kalori, polifenol, RSM, analisis sensoris cokelat

## Abstract

Dark chocolate contains 8-10 mg GAE/g of polyphenols. Total polyphenol content was decreased up to 48,06% when processed in high temperatures; therefore, *Sargassum* powder can be added as fortified. Besides that, chocolate bars contain high calories due to high sucrose content, and stevia can replace sucrose content in this study and also reduce the fishy taste caused by *Sargassum* sp. The purpose of this study was to determine the optimal formula combination for *Sargassum* sp. and stevia in chocolate bars based on consumer choices and determine the characteristics of chocolate bar products fortified *Sargassum* sp. powder. The optimal formula for chocolate bars was determined by the Response Surface Method (RSM) using a  $2^k$  factorial design (two factors and three levels), stevia sugar was designed to replace 30%, 60%, and 90% (b/b sugar) sucrose and adding *Sargassum* powder 1%, 3%, and 5% (b/b material). The hedonic test showed that the optimum formula combination for chocolate bars was 30% stevia sugar (35,5 grams) combined 1% *Sargassum* powder (30 grams). The results of total polyphenol content show that 0,001 mg of *Sargassum* powder was able to increase the polyphenol content up to  $0,54 \pm 0,002$  mg GAE/g in the optimum formula *Sargassum* chocolate bars. There were not significantly different ( $p > 0,05$ ) for chemical and physical characteristics between the chocolate, and no white spots detected. The sensory characteristics of *Sargassum* chocolate and control were significantly different in the intensity of aroma and taste, especially of cocoa paste flavor and taste of roasted cocoa beans. However, the *Sargassum* chocolate has a positive response to be developed as alternative benefit chocolate.

Key words: brown alga, low calorie sugar, antioxidant, RSM, sensory analysis of chocolate bar