

## Intisari

### PENGARUH PENGURANGAN GULA DAN PENAMBAHAN INULIN TERHADAP KARAKTERISTIK FISIK, SENSORIS, DAN GIZI SNACK BAR GRANULA *Arthrospira platensis*

Tingkat konsumsi *snack* ringan (*ngemil*) di Indonesia tinggi. *Snack bar* adalah cemilan pengganti makanan dari sereal & campuran biji-bijian yang memberikan rasa kenyang. *Snack bar* fortifikasi granula *Arthrospira platensis* menjadi ide inovasi baru agar lebih memenuhi asupan gizi harian. Pembuatannya perlu dikembangkan lebih lanjut mengingat tingginya kadar gula di *snack bar* komersial. Tujuan penelitian ini adalah mengurangi kadar gula dan penambahan inulin Orafiti®GR BENEIO yang fungsinya sama seperti gula sekaligus jadi *binder* yang bisa memperbaiki tekstur *snack bar*, dengan Indeks Glikemik (IG) rendah. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan satu faktor yaitu konsentrasi inulin *powder* 0 g; 10 g; 20 g; 30 g; 40 g; & 50 g. Hasil penelitian menunjukkan karakteristik fisik *snack bar*, struktur pori semakin besar, lebih padat, kering, kokoh, distribusi granula kurang merata, & kekerasan meningkat karena efek inulin. Inulin *powder* memberikan pengaruh nyata terhadap kadar air, lemak, protein, karbohidrat, gula total, dan serat pangan ( $p < 0,05$ ), kecuali kadar abu ( $p\text{-value } 0,539 > 0,05$ ). Kadar air yang dihasilkan berkisar antara 1,07-1,75%, kadar lemak 13,65-17,74%, kadar protein 3,90-4,83%, kadar karbohidrat 75,27-80,48%, kadar serat pangan 2,20-4,67%, dan kadar abu 0,82-0,89%. Penerimaan konsumen (uji hedonik) menunjukkan bahwa inulin mempengaruhi ketampakan, tekstur, rasa, dan keseluruhan ( $p\text{-value} < 0,05$ ), namun tidak mempengaruhi aroma ( $p\text{-value} > 0,05$ ). Hasil analisis sensori *Quantitative Descriptive Analysis* (QDA) dan *Temporal Dominance Sensation* (TDS) menunjukkan bahwa inulin menurunkan aroma susu dan mentega (*buttery*), efektif menekan aroma amis *A. platensis*. Rasa manis, asin, & gurih berubah dengan inulin, tetapi menutupi rasa pahit *A. platensis*. Inulin menonjolkan *flavor* karamelisasi & tekstur *sticky* (lengket), menutupi *starchy* granula serta aroma amis & rasa pahit *A. platensis*, serta menurunkan tekstur renyah *snack bar*. Kadar gula total yang dihasilkan P3 (inulin 20 g) sebagai formula optimum adalah 23,99%, masih lebih tinggi dari SB (kontrol), menunjukkan kurangnya efektivitas penambahan inulin dalam mengurangi gula di *snack bar*, namun tergolong rendah di bawah standar USDA 25068 sebesar 34,5%. *Snack bar* P3 (inulin 20 g) memenuhi Angka Kecukupan Gizi (AKG) yaitu terdiri dari protein 2%, karbohidrat 6%, serat pangan 3%, lemak total 7%, serta kalori sebesar 120 kkal.

Kata kunci : *snack bar A. platensis*, inulin, QDA, TDS, kadar gula total, AKG

## Abstract

### EFFECT OF SUGAR REDUCTION AND INULIN ADDITION ON PHYSICAL, SENSORY, AND NUTRITIONAL CHARACTERISTICS OF SNACK BAR GRANULA *Arthrospira platensis*

Level of light snack consumption in Indonesia is high. Snack bars are meal replacement snacks made from cereals & mixed grains that provide a feeling of fullness. *Arthrospira platensis* granule fortified snack bars are a new innovation idea to better meet daily nutritional intake. Its manufacture needs to be further developed considering the high sugar content in commercial snack bars. The purpose of this study was to reduce sugar content and the addition of Orafit®GR BENEOL inulin which functions the same as sugar as well as being a binder that can improve the texture of snack bars, with a low Glycemic Index (GI). This study used a Completely Randomized Design (CRD) with one factor, namely inulin powder concentration 0 g; 10 g; 20 g; 30 g; 40 g; & 50 g. The results showed the physical characteristics of snack bars, the pore structure was larger, denser, drier, stronger, the distribution of granules was less even, & the hardness increased due to the effect of inulin. Inulin powder significantly affected the water, fat, protein, carbohydrate, total sugar, and dietary fiber content ( $p < 0.05$ ), except for ash content ( $p\text{-value } 0.539 > 0.05$ ). The resulting moisture content ranged from 1.07-1.75%, fat content 13.65-17.74%, protein content 3.90-4.83%, carbohydrate content 75.27-80.48%, dietary fiber content 2.20-4.67%, and ash content 0.82-0.89%. Consumer preference (hedonic test) showed that inulin affected appearance, texture, taste, and overall ( $p\text{-value} < 0.05$ ), but did not affect aroma ( $p\text{-value} > 0.05$ ). The results of the Quantitative Descriptive Analysis (QDA) and Temporal Dominance Sensation (TDS) sensory analysis showed that inulin reduced the aroma of milk and butter, effectively suppressing the fishy aroma of *A. platensis*. The sweet, salty, and savory flavors changed with inulin, but covered the bitter taste of *A. platensis*. Inulin emphasized the caramelized flavor & sticky texture, covered the starchy granules and the fishy aroma & bitter taste of *A. platensis*, and reduced the crispy texture of the snack bar. The total sugar content produced by P3 (20 g inulin) as the optimum formula was 23.99%, still higher than SB (control), indicating the lack of effectiveness of adding inulin in reducing sugar in the snack bar, but was classified as low below the USDA 25068 standard of 34.5%. Snack bar (P3) meets of Nutritional Adequacy Rate need of protein 2%, carbohydrates 6%, dietary fiber 3%, total fat 7%, and calories 120 kcal.

**Keywords :** *A. platensis* snack bar, inulin, QDA, TDS, total sugar content, RDA