

## Intisari

### PENGARUH PENAMBAHAN GRANULA *Arthrospira platensis* DAN GULA STEVIA TERHADAP KARAKTERISTIK COOKIES RENDAH KALORI

*Arthrospira platensis* memiliki keunggulan kaya akan protein, asam lemak esensial, vitamin, mineral, dan fikosianin yang dapat ditambahkan pada cookies. Namun demikian, penambahan *Arthrospira platensis* dalam bentuk bubuk mempengaruhi warna, aroma, dan rasa pada produk. Salah satu cara meminimalisir aroma amis dan rasa pahit serta peningkatan daya terima konsumen dengan mengubah bubuk arthrospira menjadi granula yang memiliki keunggulan tidak mudah larut dalam adonan. Selain penambahan granula *Arthrospira platensis*, cookies pada penelitian ini dibuat dengan menggunakan gula stevia sebagai substitusi gula sukrosa untuk menghasilkan cookies rendah kalori. Tujuan penelitian ini adalah mengetahui pengaruh penambahan granula *Arthrospira platensis* dan gula stevia terhadap karakteristik sensoris dan tingkat penerimaan konsumen cookies. Rancangan penelitian menggunakan Rancangan Acak Lengkap (RAL) 2x4 yaitu substitusi gula stevia (30%;50%) dan penambahan granula *Arthrospira* (3%;6%;9% (b/b adonan)), dengan tanpa penambahan (0%) sebagai kontrol. Parameter yang diamati yaitu volume pengembangan, antioksidan, dan hedonik (sensoris). Hasil penelitian menunjukkan bahwa substitusi gula stevia berpengaruh nyata ( $p\text{-value}<0,05$ ) terhadap volume pengembangan dan intensitas rasa manis, sedangkan granula arthrospira berpengaruh nyata ( $p\text{-value}<0,05$ ) terhadap kenampakan, warna, aroma, rasa. Hasil analisis hedonik menunjukkan bahwa perlakuan G1S1 (3% granula:30% gula stevia) dan G1S2 (3% granula:50% stevia) tidak berbeda nyata dengan rerata sensoris berturut-turut 4,018 dan 4,022 sehingga kedua perlakuan dilanjutkan untuk diuji kadar air, abu dan gula total, *Quantitative Descriptive Analysis* (QDA), serta *Time Intensity* (TI). Hasil uji lanjut menunjukkan bahwa kadar air berkisar 2,65 – 3,91% memenuhi syarat mutu cookies maksimal 5% (SNI 01-2973-1992) dan kadar gula total beda nyata ( $p\text{-value}<0,05$ ) semakin tinggi substitusi gula stevia kandungan gula semakin rendah, kadar abu tidak beda nyata ( $p\text{-value}>0,05$ ). Hasil QDA menunjukkan penambahan 3% granula memberikan pengaruh rasa amis arthrospira. TI perlakuan G1S2 menunjukkan intensitas *aftertaste* pahit kuat, sedangkan G1S1 menghasilkan rasa manis dominan dan sedikit rasa amis arthrospira, sehingga perlakuan G1S1 menjadi cookies granula *Arthrospira platensis* terbaik yang dapat dijadikan alternatif pangan fungsional.

Kata Kunci: *Arthrospira platensis*, cookies, granula, gula stevia, *time intensity*

## Abstract

### THE EFFECT OF ADDITIONAL GRANULA *Arthrospira platensis* AND STEVIA SUGAR IN LOW CALORIE COOKIES CHARACTERISTICS

*Arthrospira platensis* has the advantage of being rich in protein, essential fatty acids, vitamins, minerals, and phycocyanins which can be added to cookies. However, the addition of *Arthrospira platensis* in dry biomass affect the color, aroma, and taste of the product. One way to minimize the fishy aroma, bitter taste, and increase consumer acceptance is to change the *Arthrospira* powder into granules which have the advantage of not being easily soluble in the dough. Besides the addition of *Arthrospira platensis*, cookies in this study were made using stevia sugar as a substitute for sucrose sugar to produce low-calorie cookies. The purpose of this study was to determine the effect of adding *Arthrospira platensis* granules and stevia sugar to the sensory characteristics and the level of consumer acceptance of cookies. The design of this study was a 2x4 Completely Randomized Design (CRD), namely stevia sugar substitution (30%;50%) and the addition of *Arthrospira* granules (3%;6%;9% (w/w dough)), with no addition (0%) as a control. Parameters observed were expansion volume, antioxidant, and hedonic (sensory). The results showed that the substitution of stevia sugar had a significant effect ( $p\text{-value}<0.05$ ) on the volume of expansion and intensity of sweetness, *arthrospira* granules had a significant effect ( $p\text{-value}<0.05$ ) on the appearance, color, aroma, taste. The results of the hedonic analysis showed that the G1S1 (3% granule:30% stevia sugar) and G1S2 (3% granule:50% stevia) were not significantly different sensory mean of 4.018 and 4.022 so that both treatments further analyzed in moisture, ash and total sugar content, Quantitative Descriptive Analysis (QDA), and Time Intensity (TI). Moisture content meet cookies quality content (SNI 01-2973-1992) and total sugar content were significantly different ( $p\text{-value}<0,05$ ), but the ash content was not significantly different ( $p\text{-value}>0,05$ ). The QDA results showed that the addition of 3% granules affected the fishy taste on product. TI results showed that G1S2 treatment produced a strong bitter aftertaste intensity, while G1S1 produced a dominant sweet taste and slightly fishy taste of *Arthrospira* in cookies so that G1S1 treatment is the best formulating to produce *Arthrospira platensis* granule cookies as functional food alternatives.

Keywords: *Arthrospira platensis*, cookies, granules, stevia sugar, time intensity