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**Optimasi Konsentrasi Granula Arthrospira platensis dan Tepung Jagung Menggunakan Response Surface
Methodology terhadap Karakteristik Fisik, Sensori, dan Penerimaan Konsumen Cookies Balita**
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INTISARI

OPTIMASI KONSENTRASI GRANULA *Arthrospira platensis* DAN TEPUNG JAGUNG MENGGUNAKAN *RESPONSE SURFACE METHODOLOGY* TERHADAP KARAKTERISTIK FISIK, SENSORI, DAN PENERIMAAN KONSUMEN *COOKIES* BALITA

Penelitian ini bertujuan untuk mengetahui formulasi optimum kombinasi tepung jagung dan granula *Arthrospira platensis* pada *cookies* balita berbahan baku tepung mocaf terhadap karakteristik fisik dan sensorisnya. Optimasi menggunakan *response surface methodology* (RSM) dengan rancangan penelitian *Central Composite Design* (CCD) 2^k faktorial (2 faktor dan 3 level), yaitu substitusi tepung mocaf dengan tepung jagung (Faktor I) sebesar (20%, 35%, dan 50%) dan granula *Arthrospira platensis* (Faktor II) sebesar (3%, 6%, dan 9%). Parameter yang diamati yaitu volume pengembangan, tekstur (h*ardness, cohesiveness, fracture, springiness,* dan *crispiness).* Hasil optimasi didapatkan formulasi *cookies* balita optimum pada kombinasi tepung jagung 45,93% dan granula *A. platensis* 9,13% dengan nilai *desirability* 0,58. Profil deskriptif *cookies* balita tepung jagung-granula *A. platensis* menunjukkan karakteristik aroma *buttery*, tekstur berpasir, rasa manis susu skim, *eggy flavor*, dan *eggy aftertaste*. Sensasi atribut paling dominan (TDS) *cookies* balita tepung jagung-granula *Arthrospira platensis* yaitu *buttery aftertaste*.

Kata kunci: *cookies* balita, granula *Arthrospira platensis*, tepung jagung, tekstur, *Response Surface Methodology*

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ABSTRACT

OPTIMIZATION OF *Arthrospira platensis* GRANULE AND CORN FLOUR CONCENTRATIONS USING RESPONSE SURFACE METHODOLOGY ON THE PHYSICAL CHARACTERISTICS, SENSORY PROPERTIES, AND CONSUMER ACCEPTANCE OF TODDLER COOKIES

This study aimed to optimize the formulation of corn flour and *Arthrospira platensis* granules in mocaf based toddler cookies with respect regrading their physical and sensory properties. Optimization was conducted using Response Surface Methodology (RSM) with a Central Composite Design (CCD) consiting of 2 factors and 3 levels, corn flour substitution (20%, 35%, and 50%) and *Arthrospira platensis* granules concentration (3%, 6%, and 9%). Evaluated physical parameters included expansion ratio and texture profile (hardness, cohesiveness, fracture, springiness, and crispiness). The RSM optimization identified the optimum formulation at 45.93% corn flour and 9.13% *Arthrospira platensis* granules, with a composite desirability value of 0.58. The sensory descriptive profile revealed distinct characteristics including a buttery aroma, sandy texture, skim-milk sweetness, eggy flavor, and eggy aftertaste. Furthermore, Temporal Dominance of Sensations (TDS) analysis demonstrated that buttery aftertaste was the most dominant sensory attribute during consumption.

Keywords: toddler cookies, *Arthrospira platensis* granule, corn flour, texture, Response Surface Methodology