

## **Analisis Kadar Protein, Karbohidrat dan Kalsium *Flakes* dengan Substitusi Tepung Ikan Sidat (*Anguilla bicolor*) Sebagai Sarapan Sehat Balita Stunting**

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### **ABSTRAK**

**Latar Belakang:** Pemberian menu sarapan sehat dengan kandungan gizi yang baik dapat membantu kejar tumbuh kembang balita *stunting*. *Flakes* yang diinovasi dengan substitusi tepung ikan sidat berpotensi menjadi produk makanan yang kaya akan protein, karbohidrat, dan kalsium, sehingga dapat menjadi menu sarapan sehat balita *stunting*.

**Tujuan:** Penelitian ini menganalisis dan menguji perbedaan kadar protein, karbohidrat dan kalsium pada *flakes* dengan substitusi tepung ikan sidat (*Anguilla bicolor*).

**Metode:** Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan empat formulasi *flakes* F0 (kontrol), F1 (5%:95%), F2 (10%:90%), dan F3 (15%:85%). Kadar protein diukur dengan menggunakan metode *kjeldahl*, karbohidrat menggunakan metode hidrolisis asam dan metode Nelson-Somogyi, serta kalsium menggunakan metode *atomic absorption spectrophotometry*. Data dianalisis menggunakan uji normalitas *Shapiro-Wilk*, kemudian diuji dengan *One Way ANOVA* dan dilanjutkan dengan uji *Duncan*.

**Hasil:** Hasil penelitian menunjukkan perbedaan signifikansi ( $p < 0,05$ ) dalam kadar protein, karbohidrat, dan kalsium antar formula. F3 memiliki kadar protein tertinggi ( $9,44 \pm 0,327$ ) dan kadar kalsium tertinggi ( $64,07 \pm 3,470$ ), serta F1 memiliki kadar karbohidrat tertinggi ( $62,79 \pm 0,751$ ).

**Kesimpulan:** Substitusi tepung ikan sidat (*Anguilla bicolor*) pada *flakes* berpengaruh secara signifikan terhadap kadar protein, karbohidrat, dan kalsium.

**Kata Kunci:** protein, karbohidrat, kalsium, *flakes*, tepung ikan sidat

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## **Analysis of Protein, Carbohydrate and Calcium Levels in Flakes with the Substitution of Eel Flour (*Anguilla bicolor*) as a Healthy Breakfast for Stunting Toddlers**

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### **ABSTRACT**

**Background:** Providing a healthy breakfast menu with good nutritional content can help catch-up growth and development of stunting toddlers. Flakes innovated with eel flour substitution have the potential to become a food product rich in protein, carbohydrate, and calcium, making it a healthy breakfast option for stunting toddlers.

**Objective:** This study analyzes and tests the differences in protein, carbohydrate and calcium content in flakes with the substitution of eel flour (*Anguilla bicolor*).

**Methods:** This research uses a Completely Randomized Design (CRD) with four flakes formulations F0 (control), F1 (5%:95%), F2 (10%:90%), dan F3 (15%:85%). Protein content is measured using the kjeldahl method, carbohydrates using the acid hydrolysis method and Nelson-Somogyi method, and calcium using atomic absorption spectrophotometry. Data were analyzed using the Shapiro-Wilk normality test, then tested with One Way ANOVA and followed by the Duncan test.

**Results:** The research results show a significant differences ( $p < 0,05$ ) in protein, carbohydrate, and calcium content among the formulas. F3 has the highest protein content ( $9,44 \pm 0,327$ ) and the highest calcium content ( $64,07 \pm 3,470$ ), while F1 has the highest carbohydrate content ( $62,79 \pm 0,751$ ).

**Conclusion:** The substitution of eel flour (*Anguilla bicolor*) to the flakes significantly affects the protein, carbohydrate, and calcium content.

**Keywords:** protein, carbohydrate, calcium, flakes, eel flour.

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