

OPTIMASI DAN FORMULASI SNACK BAR FUNGSIONAL KAYA ZAT BESI DAN KALSIUM DENGAN METODE MIXTURE DESIGN

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Abstract

This study aim way to optimize and formulate catfish bone meal, catfish meat meal and moringa leaf flour in the manufacture of functional snack bars using Design Expert method of Mixture D-Optimal. The research was conducted in four stages: variable determination and response determination, formulation determination with Experimental Design Expert method of Mixture D-Optimal, product manufacture and response test of functional snack bars with formulation from Design Expert method of Mixture D-Optimal, final step selected optimal formulation and optimal formulation test. The optimal formulation predicted by program Design Expert method Mixture D-optimum has a desirability value of 0.51 when the optimum formula consisting of 44.90% catfish bone meal, 30% catfish meat meal and 25.09% Moringa leaf flour. This formula has a desirability value of 0.51 which means that this formula will produce a product that has characteristics in accordance with the optimization target of 51%. The optimum formula has an organoleptic score for the hedonic test on color 2.8 (slightly like – likes), texture 2.9 (somewhat likes – likes).), taste 2.9 (slightly like – like) and aroma 2.9 (somewhat like – like). The scores for the hedonic quality test were 3.50 (dark brown slightly blackish), texture 3 (Slightly soft), taste 3.58 (Slightly sweet-sweet) and aroma 3.6 (Slightly fishy - not fishy). The results of the physical quality analysis showed that the formula had an Aw of 0.4 and a texture in the form of a hardness of 10,0002 gf. And the chemical quality analysis showed that the formula also had a water content of 6.48%, an ash content of 8.52%, a protein content of 12.98%, a fat content of 9.41%, a carbohydrate content. 62.59%, Ca content 0.24 g, Fe content 0.019 g.

Keyword : catfish bone flour, catfish meat flour, moringa leaf flour, D-optimal mixture design

Penelitian ini bertujuan untuk mengoptimalkan dan memformulasi tepung tulang ikan lele, tepung daging ikan lele dan tepung daun kelor dalam pembuatan snack bar fungsional menggunakan metode Design Expert Mixture D-Optimal. Penelitian dilakukan dalam empat tahap yaitu penentuan variabel dan penentuan respon, penentuan formulasi dengan metode Expert Design Experimental Mix D-Optimal, pembuatan produk dan uji respon snack bar fungsional dengan formulasi dari metode Design Expert Mix D-Optimal, langkah terakhir dipilih formulasi optimal dan uji formulasi optimal. Formulasi optimal yang diprediksi oleh program Design Expert metode Mixture D-optimum memiliki nilai desirability sebesar 0,51 dengan komposisi 44.90% tepung tulang ikan lele, 30% tepung daging ikan lele dan 25.09% tepung daun kelor. Formula ini memiliki nilai desirability sebesar 0,51 yang artinya formula ini akan menghasilkan produk yang memiliki karakteristik sesuai dengan target optimasi sebesar 51 Formula optimum memiliki skor organoleptik untuk uji hedonik pada warna 2.8 (agak suka – suka), tekstur 2.9 (agak suka – suka), rasa 2.9 (agak suka – suka) dan aroma 2.9 (agak suka – suka). Adapun skor untuk uji mutu hedonik warna 3.50 (Coklat tua sedikit kehitaman), tekstur 3 (Agak empuk), rasa 3.58 (Agak manis-Manis) dan aroma 3.6 (Agak amis - tidak amis). Hasil analisis mutu fisik menunjukkan bahwa formula tersebut memiliki Aw 0.4 dan tekstur berupa kekerasan 10.0002 gf, Dan analisis mutu kimia menunjukkan bahwa formula tersebut juga memiliki kadar air 6.48%, kadar abu 8.52%, kadar protein 12.98%, kadar lemak 9.41%, kadar karbohidrat 62.59%, kadar Ca 0.24 g, kadar Fe 0.019 g.