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Pengaruh Substitusi Tepung Terigu dengan Tepung Ulva lactuca terhadap Karakteristik Fisik, Kimia, dan Sensori Vegan Milk Bread
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Intisari

Pengaruh Substitusi Tepung Terigu dengan Tepung *Ulva lactuca* terhadap Karakteristik Fisik, Kimia, dan Sensori *Vegan Milk Bread*

Penelitian ini dilakukan untuk mengembangkan *vegan milk bread* yang disubstitusi tepung *Ulva lactuca.* Tujuan penelitian ini yaitu (1) mengetahui pengaruh substitusi tepung *Ulva lactuca* terhadap karakteristik fisik (2) mengetahui pengaruhnya terhadap karakteristik kimia, serta (3) mengetahui pengaruhnya terhadap karakteristik sensori. Penelitian menggunakan Rancangan Acak Lengkap (RAL) satu faktor dengan enam taraf substitusi, yaitu 0%, 1%, 2%, 3%, 4%, dan 5%. Parameter yang diamati meliputi volume, volume spesifik, *baking loss*, daya kembang total, perkembangan volume, tekstur, warna, umur simpan, kenampakan pori, kadar air, serat pangan, Fe, aktivitas antioksidan, serta karakteristik sensori meliputi uji *Quantitative Descriptive Analysis* dan uji hedonik. Hasil penelitian menunjukkan bahwa substitusi berpengaruh nyata (P<0,05) terhadap volume, volume spesifik, *baking loss*, daya kembang total, tekstur, warna, kadar air, serat pangan, Fe, aktivitas antioksidan, dan uji hedonik. Kadar air seluruh perlakuan memenuhi syarat SNI 01-3840-1995. Kandungan serat pangan meningkat dari 3,83% (0%) menjadi 7,28% (5%), dan Fe meningkat dari 4,33 (0%) menjadi 5,50 (5%) seiring meningkatnya konsentrasi. Aktivitas antioksidan cenderung menurun dari 62,62% (0%) menjadi 50,31% (5%). Uji QDA menunjukkan bahwa peningkatan konsentrasi meningkatkan aroma dan *flavor* amis khas *Ulva*, rasa dan *aftertaste* pahit khas *Ulva*, serta tekstur padat dan kompak, dan menurunkan aroma asam dan gurih, rasa manis, serta *flavor* gurih dan *milky* produk. Uji hedonik menunjukkan tingkat penerimaan konsumen tertinggi pada perlakuan kontrol yang tidak berbeda nyata dengan perlakuan 1% substitusi.

KATA KUNCI: *Ulva lactuca*, *vegan milk bread*, serat pangan, zat besi, pangan fungsional

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Abstract

The Effect of Wheat Flour Substitution with *Ulva lactuca* Powder on the Physical, Chemical, and Sensory Characteristics of Vegan Milk Bread

This study was conducted to develop vegan milk bread substituted with *Ulva lactuca*. The objectives of this study were (1) to determine the effect of *Ulva lactuca* powder substitution on physical characteristics, (2) to determine its effect on chemical characteristics, and (3) to determine its effect on sensory characteristics. A one-factor Completely Randomized Design (CRD) with six substitution levels 0%, 1%, 2%, 3%, 4%, and 5% was employed in the study. Volume, specific volume, baking loss, total expansion, volume development, texture, color, shelf life, pore appearance, moisture content, dietary fiber, Fe, antioxidant activity, and sensory attributes which included hedonic acceptance and Quantitative Descriptive Analysis were among the parameters assessed. The results showed that volume, specific volume, baking loss, total expansion, texture, color, moisture content, dietary fiber, Fe, antioxidant activity, and hedonic evaluation were all significantly ($P<0.05$) impacted by substitution. Moisture content complied with SNI 01-3840-1995 in all treatments. Higher replacement levels resulted in higher concentrations of Fe (4.33 to 5.50) and total dietary fiber (3.83% to 7.28%). Between 62.62% and 50.31%, antioxidant activity tended to decline. According to QDA results, raising the concentration decreased the sour and savory odors, the sweet taste, and the savory and milky flavors of *Ulva* while enhancing its distinctive fishy and flavor, bitter taste and aftertaste, and firm and compact texture. The substitution of *Ulva lactuca* powder at a level of 1% was the most preferred by the panelists and did not differ significantly from the control ($P>0.05$).

KEYWORDS: *Ulva lactuca*, vegan milk bread, dietary fiber, iron, functional food