

ABSTRACT

EFFECT OF NaHCO_3 ADDITION ON THE CHEMICAL AND SENSORY CHARACTERISTICS OF MORINGA SEED TEMPEH

By

SHERLY SACITRA

Tempeh is a fermented product commonly made from soybeans; whereas, the utilization of moringa seeds as an alternative raw material was still limited. Moringa seeds contained high levels of protein and bioactive compounds, but they also had a bitter taste and a beany odor that could reduce consumer acceptance. Therefore, the addition of sodium bicarbonate (NaHCO_3) was required to improve the sensory and chemical properties of moringa seed tempeh. This study aimed to determine the effect of NaHCO_3 addition on the sensory and chemical characteristics of moringa seed tempeh and to identify the best treatment. This study employed a non-factorial Randomized Complete Block Design (RCBD) with six treatments of NaHCO_3 addition and three replications. The observed parameters included sensory properties (color, aroma, texture, taste, and overall acceptance) and chemical properties (moisture content, ash content, protein content, fat content, and antioxidant activity). The results showed that NaHCO_3 had a significant effect on aroma, taste, color, texture, overall acceptance, and ash content, but had no significant effect on moisture content. The best treatment was P5, with the addition of 12.5 g NaHCO_3 . The scoring test results showed values of color 2.20, aroma 3.08, texture 2.96, and taste 3.20. The hedonic test results showed values of color 2.77, aroma 3.06, texture 2.91, taste 3.06, and overall acceptance 3.13. Chemically, the best treatment contained 23.6% protein, 49.39% moisture, 1% ash, and 78.08% antioxidant activity, which met the Indonesian National Standard (SNI 3144:2015), except for fat content (6.2%), which did not meet the standard.

Keywords: moringa seed tempeh, sodium bicarbonate (NaHCO_3), sensory properties, chemical properties, antioxidant activity.

ABSTRAK

PENGARUH PENAMBAHAN NaHCO_3 TERHADAP KARAKTERISTIK KIMIA DAN SENSORI TEMPE BIJI KELOR

Oleh

SHERLY SACITRA

Tempe merupakan produk fermentasi yang umumnya berbahan dasar kedelai, namun pemanfaatan biji kelor sebagai bahan baku alternatif masih terbatas. Biji kelor memiliki kandungan protein dan senyawa bioaktif yang tinggi, tetapi memiliki rasa pahit dan aroma langu yang dapat menurunkan penerimaan konsumen. Oleh karena itu, diperlukan perlakuan penambahan natrium bikarbonat (NaHCO_3) untuk memperbaiki sifat sensori dan kimia tempe biji kelor. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan NaHCO_3 terhadap sifat sensori dan kimia tempe biji kelor serta menentukan perlakuan terbaik. Penelitian ini menggunakan Rancangan Acak Kelompok Lengkap (RAKL) non-faktorial dengan 6 perlakuan penambahan NaHCO_3 dan tiga ulangan. Parameter yang diamati meliputi sifat sensori (warna, aroma, tekstur, rasa, dan penerimaan keseluruhan) serta sifat kimia (kadar air, kadar abu, kadar protein, kadar lemak, dan aktivitas antioksidan). Hasil penelitian menunjukkan bahwa penambahan NaHCO_3 berpengaruh nyata terhadap aroma, rasa, warna, tekstur, penerimaan keseluruhan, dan kadar abu, namun tidak berpengaruh nyata terhadap kadar air. Perlakuan terbaik diperoleh pada perlakuan P5 yaitu penambahan NaHCO_3 sebesar 12,5 gram. Hasil uji skoring menunjukkan nilai warna 2,20, aroma 3,08, tekstur 2,96, dan rasa 3,20. Hasil uji hedonik menunjukkan nilai warna 2,77, aroma 3,06, tekstur 2,91, rasa 3,06, serta penerimaan keseluruhan 3,13. Secara kimia, perlakuan terbaik memiliki kadar protein 23,6%, kadar air 49,39%, kadar abu 1%, dan aktivitas antioksidan 78,08% yang telah memenuhi SNI 3144:2015, kecuali kadar lemak sebesar 6,2% yang belum memenuhi standar.

Kata kunci: tempe biji kelor, natrium bikarbonat (NaHCO_3), sifat sensori, sifat kimia, antioksidan.