

Syafaatil Qomariyah. NPM 220331100091. Korelasi Antara Komponen Volatil Hasil Analisis *Gas Chromatography-Mass Spectrometry* dan Persepsi Sensoris Pada Tempe Semangit Dengan Inokulum Halotoleran. Di bawah bimbingan **Prof. Ir. Umi Purwandari, M.App.Sc., Ph.D.** dan **Dr. Supriyanto, S.TP., M.P.**

ABSTRAK

Penelitian ini bertujuan untuk menganalisis hubungan antara komponen volatil hasil analisis HS-SPME GC-MS dengan persepsi sensoris pada tempe semangit yang diinokulasi bakteri halotoleran asal tauco dan terasi. Evaluasi sensoris dilakukan menggunakan metode Quantitative Descriptive Analysis (QDA) oleh panelis terlatih, sedangkan profil senyawa volatil dianalisis menggunakan GC-MS. Hasil uji sensoris menunjukkan bahwa atribut aroma jamur dan amonia menjadi karakter dominan pada seluruh sampel, dengan intensitas aroma amonia berkisar 7,5–9,0 dan aroma jamur 6,5–8,0, sementara aroma kedelai relatif rendah (2,0–3,5). Uji Friedman menunjukkan bahwa atribut kedelai dan jamur tidak berbeda signifikan, sedangkan atribut amonia menunjukkan perbedaan nyata secara eksploratif pada taraf $\alpha = 0,1$, terutama antara sampel tauco dan kontrol. Analisis GC-MS mengidentifikasi senyawa utama berupa 3-methylbutanal (hingga 12,55%), 3-methyl-1-butanol (hingga 9,44%), pentanal (4,13%), dan hexanal (0,91%). Sampel kontrol menunjukkan dominasi senyawa aldehid dan alkohol, sedangkan sampel dengan inokulum tauco menunjukkan kecenderungan peningkatan senyawa amina. Analisis korelasi Spearman menunjukkan adanya hubungan antara senyawa volatil dan atribut sensoris, di mana butanimidamide dan benzaldehyde berkorelasi positif dengan aroma amonia ($r = 1,000$), sedangkan 3-methylbutanal, 3-methyl-1-butanol, dan hexanal menunjukkan korelasi negatif terhadap aroma kedelai ($r = -0,866$). Secara keseluruhan, penelitian ini menunjukkan bahwa senyawa volatil hasil fermentasi berkontribusi terhadap pembentukan karakter aroma tempe semangit, serta memberikan gambaran awal hubungan antara profil kimia dan persepsi sensoris.

Kata kunci: Tempe Semangit, Senyawa Volatil, GC-MS, QDA, Korelasi Spearman, Aroma.

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ABSTRACT

This study aimed to analyze the relationship between volatile components from HS-SPME GC-MS analysis and sensory perception in tempeh semangit inoculated with halophilic bacteria from tauco and shrimp paste. Sensory evaluation was conducted using the Quantitative Descriptive Analysis (QDA) method by trained panelists, while the volatile compound profile was analyzed using GC-MS. The sensory test results showed that mushroom and ammonia aroma attributes were the dominant characters in all samples, with ammonia aroma intensity ranging from 7.5–9.0 and mushroom aroma 6.5–8.0, while soybean aroma was relatively low (2.0–3.5). The Friedman test showed that the soybean and mushroom attributes were not significantly different, while the ammonia attribute showed a real difference in an exploratory manner at the $\alpha = 0.1$ level, especially between the tauco and control samples. GC-MS analysis identified the main compounds as 3-methylbutanal (up to 12.55%), 3-methyl-1-butanol (up to 9.44%), pentanal (4.13%), and hexanal (0.91%). Control samples showed a dominance of aldehyde and alcohol compounds, while samples with tauco inoculum showed a tendency to increase amine compounds. Spearman correlation analysis showed a relationship between volatile compounds and sensory attributes, where butanimidamide and benzaldehyde were positively correlated with ammonia aroma ($r = 1.000$), while 3-methylbutanal, 3-methyl-1-butanol, and hexanal showed a negative correlation with soybean aroma ($r = -0.866$). Overall, this study indicates that volatile compounds from fermentation contribute to the formation of the aroma character of semangit tempeh, and provides an initial picture of the relationship between chemical profiles and sensory perception.

Keyword: tempeh semangit, volatile compounds, GC-MS, QDA, Spearman correlation, aroma.