ABSTRAK

Kombucha merupakan minuman fermentasi yang diketahui kaya akan senyawa antioksidan. Madu lebah tanpa sengat dinilai berpotensi untuk digunakan sebagai sumber karbon untuk meningkatkan sifat fungsional kombucha karena kaya akan senyawa polifenol dan flavonoid yang berperan dalam aktivitas antioksidan madu tersebut. Terlebih hingga saat ini studi mengenai pemanfaatan madu lebah tanpa sengat pada produk pangan terutama kombucha belum banyak dieksplorasi. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan variasi konsentrasi madu lebah tanpa sengat spesies *Heterotrigona itama* dan mendapatkan formulasi dengan aktivitas antioksidan, total flavonoid dan fenolik tertinggi serta pH dan organoleptik terbaik minuman kombucha lingzhi serta memenuhi batasan kadar alkohol berdasarkan fatwa Majelis Ulama' Indonesia (MUI) selama penyimpanan produk melalui penanganan pascaproduksi. Metode penelitian yang digunakan adalah metode eksperimental dengan analisis deskriptif menggunakan Rancangan Acak Lengkap (RAL). Penelitian ini dilakukan dengan perlakuan penambahan madu dari lebah *H. itama* pada berbagai konsentrasi, yaitu A (100% gula), B (50% gula : 50% madu), dan C (100% madu). Parameter yang diteliti ialah aktivitas antioksidan, total fenolik dan flavonoid, pH, dan karakteristik organoleptik serta formulasi terbaik dilakukan pengujian parameter kadar alkohol (etanol). Hasil penelitian menunjukkan variasi konsentrasi madu dari lebah *H. itama* berpengaruh signifikan terhadap aktivitas antioksidan, total fenolik dan flavonoid, pH, dan hampir seluruh atribut karakteristik organoleptik. Dalam hasil uji indeks efektivitas perlakuan C dipilih sebagai formulasi terbaik walaupun karakteristik organoleptiknya cenderung kurang disukai panelis. Berdasarkan analisis kadar etanol pada formulasi terbaik minuman kombucha lingzhi diketahui proses pasteurisasi dan sterilisasi UV tidak memberikan pengaruh yang signifikan dalam menghentikan produksi alkohol karena pada sampel dengan atau tanpa penanganan pascaproduksi mengandung kadar etanol dibawah 0,5% dan tidak terjadi peningkatan kadar etanol selama 30 hari penyimpanan.

Kata Kunci: Antioksidan, Kadar Alkohol, Kombucha, Madu Lebah Tanpa Sengat

ABSTRACT

Kombucha is a fermented drink known to be rich in antioxidant compounds. Stingless bee honey is considered to have the potential as a carbon source to enhance the functional properties of kombucha due to its content which is rich in polyphenol and flavonoid compounds, which play a role as antioxidants in this honey. Moreover, until now, studies on the use of stingless bee honey in food products, especially kombucha, have yet to be widely explored. This study aims to determine the effect of adding variations in the concentration of stingless bee honey of Heterotrigona itama species and to obtain a formulation with the highest antioxidant activity, total phenolics and flavonoids content as well as the best pH value and organoleptic of kombucha lingzhi drink and meets the limits on alcohol content based on the fatwa of Majelis Ulama' Indonesia (MUI) during storage period through post-production handling. In this study, the research method used is the experimental method with descriptive analysis using Completely Randomized Design (CRD). This research was conducted by adding honey from H. itama bee at various concentrations: A (100% sugar), B (50% sugar : 50% honey), and C (100% honey). The parameters in this study were antioxidant activity, total phenolic and flavonoid content, pH value, and organoleptic characteristics, as well as testing the alcohol (ethanol) content of the best formulation. The results show that variation in the concentration of honey from H. itama bee significantly affected antioxidant activity, total phenolic and flavonoids, pH, and most of the organoleptic characteristic attributes. In the effectiveness index test results, sample C was chosen as the best formulation, although its organoleptic characteristics tended to be less liked by the panelist. Based on the analysis of ethanol content in the best formulation of kombucha lingzhi drink during the storage period, it is known that the pasteurization and UV sterilization does not have a significant effect on stopping alcohol production because the samples with or without post-production handling contain ethanol levels below 0,5% also ethanol content did not increase during the 30 days of storage.

***Keywords**: Antioxidant, Alcohol Content, Kombucha, Stingless Bee Honey*