PENGARUH PENAMBAHAN GUM ARAB DAN METODE PENGERINGAN TERHADAP SIFAT KIMIA, FISIK, DAN TINGKAT KESUKAAN BUBUK LIDAH BUAYA

INTISARI

Lidah buaya merupakan tanaman yang memiliki berbagai khasiat untuk kesehatan karena mengandung senyawa antioksidan di dalamnya. Bubuk lidah buaya memiliki kelarutan yang rendah dan aktivitas antioksidan yang berkurang selama proses pengeringan gel lidah buaya menjadi bubuk. Tujuan dari penelitian ini adalah menghasilkan bubuk lidah buaya dengan menggunakan variasi metode pengeringan dan penambahan gum arab sebagai bahan pengisi.

Penelitian ini menggunakan rancangan acak lengkap dengan perlakuan variasi penambahan gum arab dan metode pengeringan. Lidah buaya yang digunakan adalah *Aloe vera* var. *Chinensis* dengan konsentrasi penambahan gum arab 0, 5, dan 10% serta variasi metode pengeringan *oven* dan *cabinet drying* pada suhu 50^{o}C. Analisis yang dilakukan yaitu sifat kimia meliputi aktivitas antioksidan metode *2,2 difenil-1-pikilhidrazil* (DPPH), kadar total fenol, dan kadar air. Uji sifat fisik meliputi densitas, porositas, dan solubilitas. Uji tingkat kesukaan panelis terhadap bubuk lidah buaya meliputi warna, aroma, rasa, tekstur, dan keseluruhan. Rancangan percobaan yang dilakukan yaitu Rancangan Acak Lengkap (RAL) serta uji perbedaan antar perlakuan dengan *Duncan's Multiple Range Test* (DMRT).

Hasil penelitian menunjukkan bahwa penambahan gum arab pada bubuk lidah buaya berbeda nyata terhadap aktivitas antioksidan, kadar total fenol, dan kadar air bubuk. semakin tinggi konsentrasi penambahan gum arab maka nilai sifat kimian aktivitas antioksidan, kadar total fenol, dan kadar air semakin turun. Hasil uji statistik menunjukkan adanya perbedaan nyata pada aktivitas antioksidan bubuk lidah buaya metode *oven drying* dengan *cabinet drying*, namun tidak berbeda nyata pada kadar total fenol dan kadar air bubuk yang ditambahkan gum arab. Sifat fisik densitas, porositas, dan solubilitas bubuk lidah buaya yang dihasilkan berbeda nyata antara variasi penambahan gum arab dan metode pengeringan. Hasil uji anova menunjukkan adanya perbedaan nyata antara variasi penambahan gum arab dan metode pengeringan terhadap tingkat kesukaan panelis pada warna, aroma, rasa, tekstur, dan keseluruhan bubuk lidah buaya yang dihasilkan. Bubuk lidah buaya terbaik yang paling disukai adalah bubuk yang ditambah gum arab 5% dan dikeringkan dengan *oven* dengan karakteristik kimia yaitu aktivitas antioksidan dengan *Radical Scavenging Activity* (RSA) 31,20±1,61%, total fenol 105,06±0,28 µg EAG/g bk dan kadar air 9,82±0,54%. Sifat fisik yaitu densitas kamba 0,59±0,09 g/cm^3, densitas nyata 0,68±0,09 g/cm^3, porositas 13,38±0,35%, dan solubilitas 28,95±0,05%.

Kata kunci: Bubuk lidah buaya, gum arab, *oven dryer* dan *cabinet dryer*

THE EFFECT OF ADDITIONAL GUM ARABIC AND DRYING METHODS ON CHEMICAL, PHYSICAL PROPERTIES, AND LEVEL OF ADVANTAGE OF ALOE VERA POWDER

ABSTRACT

Aloe vera is a plant with various health benefits because it contains antioxidant compounds. Aloe vera powder has low solubility and reduced antioxidant activity during the drying process of aloe vera gel into powder. The purpose of this study was to produce aloe vera powder using a variety of drying methods and the addition of gum arabic as a filler.

This study used a completely randomized design with variations in the addition of gum arabic and drying methods. The aloe vera used is Aloe vera var. Chinensis with the addition of gum arabic 0, 5, and 10% concentration and variations of oven and cabinet drying methods at 50^{o}C. The analysis of chemical properties including the antioxidant activity of the DPPH method, total phenol content, and water content. Physical properties tests include density, porosity, and solubility. The panelists' level of preference test for aloe vera powder included color, aroma, taste, texture, and overall. The experimental design done was a completely randomized design and a test of differences between treatments with Duncan's Multiple Range Test (DMRT).

The results showed that the addition of gum arabic to aloe vera powder had a significant difference in antioxidant activity, total phenol content, and water content of the powder. The higher the concentration of gum arabic addition, the value of the chemical properties of antioxidant activity, total phenol content, and water content decreased. The results of statistical tests showed that there was a significant difference in the antioxidant activity of aloe vera powder using the oven drying and cabinet drying method, but there was no significant difference in the total phenol content and the moisture content of the powder added with gum arabic. The physical properties of density, porosity, and solubility of aloe vera powder were significantly different between variations in the addition of gum arabic and the drying method. The results of the ANOVA test showed that there was a significant difference between the variation of the addition of gum arabic and the drying method on the panelists' preference for color, aroma, taste, texture, and overall aloe vera powder produced. The best aloe vera powder is the most preferred which is added with 5% gum arabic and oven-dried with chemical properties, namely antioxidant activity RSA 31.20±1.61%, total phenol content 105.06±0.28 g EAG/g bk, and water content 9.82±0.54%. The physical properties are bulk density 0.59±0.09 g/cm3, true density 0.68±0.09 g/cm3, porosity 13.38±0.35%, and solubility 28.95±0.05%.

Keywords: Aloe vera powder, gum arabic, oven dryer, and cabinet dryer