ABSTRAK

Porlin Imelda Hutagaol : ***Analisis Fisikokimia dan Aktivitas Antioksidan Minuman Serbuk Instan Kombinasi Markisa Kuning (Passiflora edulis var. flavicarva) dan andaliman (Zanthoxylum acanthopodium DC).*** **Fakultas Teknik Universitas Negeri Medan. 2024.**

Minuman instan merupakan suatu produk olahan minuman yang berbentuk serbuk, mudah larut dalam air, praktis dalam penyajian, dan memiliki umur simpan yang relatif lebih lama. Adapun tujuan dari penelitian ini adalah untuk mengetahui daya terima sensori, karakteristik fisik dan karakteristik kimia, serta aktivitas antioksidan minuman serbuk instan markisa kuning kombinasi andaliman.

Desain penelitian yang digunakan dalam penelitian ini adalah eksperimental menggunakan desain Rancangan Acak Lengkap (RAL) dengan 3 perlakuan yaitu F1 = markisa kuning 75% dan andaliman 25%, F2 = markisa kuning 50% dan andaliman 50%, dan F3 = markisa kuning 25% dan andaliman 75% yang dikeringkan dalam bentuk serbuk selama 12 jam dengan menggunakan *Foam mat drying*. Uji organoleptik dilakukan di laboratorium Gizi Universitas Negeri Medan, sedangkan untuk analisis fisikokimia dan aktivitas antioksidan dilakukan di laboratorium Gizi Universitas Negeri Medan dan di Politeknik Teknologi Kimia Industri (PTKI). Pada uji organoleptik yaitu berupa uji hedonik dan uji mutu hedonik yang mana dalam prosesnya menggunakan panelis tidak terlatih yang secara keseluruhan berjumlah 30 orang. Kemudian hasil penelitian ini dianalisis dengan menggunakan metode uji *Kruskal Wallis* yang dilanjutkan dengan *uji mann whitney.*

Berdasarkan hasil uji sensorik perlakuan terpilih yaitu F1 dengan perlakuan markisa kuning 75% dan andaliman 25%. Karakteristik fisik pada minuman serbuk instan kombinasi markisa kuning dan andaliman tersebut yaitu pada rendemen markisa kuning (36,48%), rendemen andaliman (46,03%), tingkat kelarutan (99,71%), densitas kamba (4,08g/ml), higroskopitas (7,49%). Karakteristik kimia pada minuman serbuk instan kombinasi markisa kuning dan andaliman yaitu pada kadar air (3,02%), kadar pH (3,55), kadar gula total(1,32%), dan kadar flavonoid (7,19 mg/g). Nilai aktivitas antioksidan berdasarkan nilai IC_{50} yaitu 74,30 ppm.

Kata Kunci : Minuman serbuk instan, Fisikokimia, Aktivitas antioksidan, Markisa kuning, Andaliman.

ABSTRACT

Porlin Imelda Hutagaol: Physicochemical Analysis and Antioxidant Activity of Instant Powder Drink Combination of Yellow Passion Fruit (Passiflora edulis var. flavicarva) and andaliman (Zanthoxylum acanthopodium DC). Medan State University Faculty of Engineering. 2024.

Instant drink is a processed beverage product in powder form, easily soluble in water, practical to serve, and has a relatively long shelf life. The aim of this research is to determine the sensory acceptability, physical characteristics and chemical characteristics, as well as the antioxidant activity of the instant yellow passion fruit powder drink combined with andaliman.

The research design used in this study was experimental using a Completely Randomized Design (CRD) with 3 treatments, namely F1 = 75% yellow passion fruit and 25% andaliman, F2 = 50% yellow passion fruit and 50% andaliman, and F3 = 25% yellow passion fruit and andaliman 75% which is dried in powder form for 12 hours using a Foam mat drying. sensory tests were carried out at the Nutrition laboratory at Medan State University, while physicochemical analysis and antioxidant activity were carried out at the Nutrition laboratory at Medan State University and at the Industrial Chemical Technology Polytechnic (PTKI). In the organoleptic tests, namely in the form of hedonic tests and hedonic quality tests, the process uses untrained panelists, a total of 30 people. Then the results of this research were analyzed using the Kruskal Wallis test method followed by the Mann Whitney test.

Based on the sensory test results, the selected treatment was F1 with 75% yellow passion fruit and 25% andaliman treatment. The physical characteristics of the instant powder drink combination of yellow passion fruit and andaliman are yellow passion fruit yield (36.48%), andaliman yield (46.03%), solubility level (99.71%), bulk density (4.08g/ml), hygroscopicity (7.49%). The chemical characteristics of the instant powder drink combination of yellow passion fruit and andaliman are water content (3.02%), pH content (3.55), total sugar content (1.32%), and flavonoid content (7.19 mg/g). The antioxidant activity value is based on the IC50 value, namely 74.30 ppm.

Keywords: Instant powder drink, physicochemistry, antioxidant activity, yellow passion fruit, Andaliman.