KARAKTERISTIK FISIKOKIMIA, ANTIOKSIDAN, DAN ANTIDIABETIK MI GARUT (*Maranta arundinacea*) DENGAN PENAMBAHAN TEPUNG DAUN SALAM (*Syzygium polyanthum*)

ABSTRAK

Mi berbahan tepung umbi garut (*Maranta arundinacea*) dengan tepung daun salam (*Syzygium polyanthum*) dikembangkan sebagai makanan fungsional dengan potensi antidiabetik. Umbi garut dipilih karena memiliki indeks glikemik rendah, sehingga berpotensi baik untuk penderita diabetes. Daun salam ditambahkan karena kandungan senyawa bioaktifnya, seperti flavonoid, diketahui dapat menurunkan kadar glukosa darah dan meningkatkan aktivitas antioksidan. Penelitian ini mengevaluasi karakteristik fisikokimia, sensori, dan aktivitas antidiabetik mi berbahan tepung umbi garut dengan variasi konsentrasi tepung daun salam (0%, 2%, 4%, dan 6%). Analisis fisikokimia meliputi kadar air, abu, lemak, protein, karbohidrat, total flavonoid, warna, elongasi, daya serap air, *cooking loss*, dan waktu pemasakan. Aktivitas antioksidan diuji menggunakan metode DPPH (2,2-difenil-1-pikrilhidrazil), sedangkan potensi antidiabetik dianalisis melalui penghambatan aktivitas enzim α-glukosidase. Hasil penelitian menunjukkan bahwa penambahan tepung daun salam memengaruhi karakteristik fisikokimia mi garut, yaitu mengurangi nilai elongasi dari 64,50% menjadi 46,66% dan *cooking loss* dari 10,47% menjadi 5,84%, serta meningkatkan daya serap air (104,47-151,78%), waktu pemasakan (10,14-13,15 menit), kadar air (8,48-10,09%), abu (1,68-2,01%), lemak (0,41-1,42%), dan protein (1,90-6,54%). Total flavonoid mencapai 3,25 mg QE/g dan aktivitas antioksidan dengan nilai IC_{50} sebesar 132,72 µg/mL terdapat pada penambahan 6% tepung daun salam, yang juga sejalan dengan peningkatan persentase kemampuan penghambatan enzim α-glukosidase sebesar 71,91%. Secara keseluruhan, mi berbahan umbi garut dengan tepung daun salam menunjukkan potensi besar sebagai makanan fungsional yang mendukung pengelolaan diabetes melalui mekanisme penghambatan α-glukosidase.

Keywords: Antidiabetes, Antioksidan, Flavonoids, *in vitro*, Mi

PHYSICOCHEMICAL CHARACTERISTICS, ANTIOXIDANT, AND ANTIDIABETIC PROPERTIES OF ARROWROOT (*Maranta arundinacea*) NOODLES WITH ADDITION OF BAY LEAF (*Syzygium polyanthum*) FLOUR

ABSTRACT

Noodles based on arrowroot (*Maranta arundinacea*) tuber flour with bay leaf (*Syzygium polyanthum*) flour were developed as a functional food with antidiabetic potential. The arrowroot tuber was chosen because it has a low glycemic index, making it a potential for diabetics. Bay leaf was added because its bioactive compounds, such as flavonoids, are known to reduce blood glucose levels and increase antioxidant activity. This study assesses the physicochemical characteristics, sensory and antidiabetic activity of arrowroot tuber flour noodles with varying concentrations of bay leaf flour (0%, 2%, 4%, and 6%). The physicochemical analysis included moisture content, ash, fat, protein, total flavonoids, color, elongation, water absorption, cooking loss, and cooking time. Antioxidant activity was tested using the DPPH (2,2-diphenyl-1-picrylhydrazyl) method, while antidiabetic potential was analyzed through inhibition of *α-glucosidase* enzyme activity. The results showed that the addition of bay leaf flour affected the physicochemical characteristics of arrowroot noodles, namely reducing the elongation value from 64.50 to 46.66% and cooking loss from 10.47 to 5.84%, increasing water absorption (104.47-151.78%) and cooking time (10.14-13.15 min), and increasing the moisture content (8.48-10.09%), ash (1.68-2.01%), fat (0.41-1.42%), and protein (1.90-6.54%). Total flavonoids (3.25 mg QE/g) and IC_{50} antioxidant activity (132.72 µg/mL) were recorded at 6% bay leaf flour addition, in line with the increased *α-glucosidase* enzyme inhibitory ability (71.91%). Overall, arrowroot tuber noodles with bay leaf flour showed great potential as a functional food supporting diabetes management through the mechanism of *α-glucosidase* inhibition.

Keywords: Antidiabetic, Antioxidant, Flavonoids, *in vitro*, Noodles