

ABSTRAK

Diabetes merupakan penyakit metabolik kronis dengan prevalensi yang terus meningkat secara global. Salah satu pendekatan yang potensial dalam upaya preventif dan manajemen diabetes adalah penggunaan bahan alam sebagai minuman fungsional. Penelitian ini bertujuan mengembangkan formulasi Teh herbal berbahan dasar daun *Boehmeria nivea* (rami) yang dikombinasikan dengan *Stevia rebaudiana* dan *Cinnamomum burmannii* sebagai agen antidiabetes. Evaluasi dilakukan melalui uji organoleptik, kandungan total fenolik, serta aktivitas *in-silico*, *in-vitro*, dan *in-vivo*. Tiga formulasi diuji: C1 (100% rami), C2 (73% rami, 23% stevia, 4% kayu manis), dan C3 (68% rami, 28% stevia, 4% kayu manis). Hasil uji organoleptik menunjukkan formulasi C2 paling disukai panelis. Formulasi ini juga memiliki kandungan fenolik tertinggi sebesar 942,61 mg GAE/L. Uji *in-vitro* menunjukkan C2 memiliki aktivitas penghambatan enzim α -amilase sebesar 73%. Studi *in-silico* menunjukkan senyawa aktif seperti quercetin, kaempferol dan rutin memiliki afinitas ikatan kuat terhadap enzim α -glukosidase dan α -amilase. Uji *in-vivo* pada mencit diabetes menunjukkan bahwa dosis 250 mg/kg BB dan 1000 mg/kg BB dari formulasi C2 mampu menurunkan kadar glukosa darah secara signifikan. Berdasarkan hasil tersebut, dapat disimpulkan bahwa formulasi C2 memiliki potensi terbaik sebagai minuman fungsional antidiabetes.

Kata kunci: *Boehmeria nivea*, *Stevia rebaudiana*, *Cinnamomum burmannii*, Teh herbal, Antidiabetes

ABSTRACT

*Diabetes is a chronic metabolic disorder with a globally increasing prevalence. One promising approach for prevention and management of diabetes is the use of natural ingredients as functional beverages. This study aimed to develop a herbal tea formulation based on *Boehmeria nivea* (ramie) leaves combined with *Stevia rebaudiana* and *Cinnamomum burmannii* as an antidiabetic agent. Evaluation included organoleptic testing, total phenolic content, and antidiabetic activity through in-silico, in-vitro, and in-vivo methods. Three formulations were tested: C1 (100% ramie), C2 (73% ramie, 23% stevia, 4% cinnamon), and C3 (68% ramie, 28% stevia, 4% cinnamon). Organoleptic results showed that formulation C2 was the most preferred by panelists. It also had the highest total phenolic content at 942.61 mg GAE/L. The in-vitro test showed C2 had the highest α -amylase inhibition activity at 73%. In-silico studies revealed that active compounds such as quercetin, kaempferol and rutin had strong binding affinities to α -glucosidase and α -amylase. The in-vivo test in diabetic mice showed that 250 mg/kg BW and 1000 mg/kg BW doses of C2 significantly reduced blood glucose levels. These findings indicate that formulation C2 has the highest potential as a functional antidiabetic beverage.*

Keywords: *Boehmeria nivea, Stevia rebaudiana, Cinnamomum burmannii, herbal tea, antidiabetic*

