

ABSTRACT

*Diabetes mellitus is a chronic metabolic disease characterized by elevated blood glucose levels due to impaired insulin production or function, with increasing prevalence globally and in Indonesia. Long-term use of synthetic drugs may cause side effects, leading to the need for alternative therapies such as herbal plants. Bitter melon leaves (*Momordica charantia* L.) and insulin leaves (*Tithonia diversifolia* A. Gray) are known to have antidiabetic activity. Bitter melon leaves contain alkaloids, flavonoids, saponins, and tannins that reduce blood glucose through antioxidant activity, increased insulin sensitivity, and inhibition of hepatic glucose formation. Insulin leaves contain flavonoids, saponins, and tannins that inhibit glucose absorption, stimulate glucose uptake by peripheral tissues, and improve carbohydrate and fat metabolism. However, research on the combined infusion of these two plants remains limited.*

*This experimental study aimed to evaluate the antidiabetic effectiveness of a combination of bitter melon leaf and insulin leaf infusions and to determine the most effective dose in alloxan-induced mice (*Mus musculus*). Diabetes was induced using alloxan at a dose of 150 mg/kgBW. Animals were divided into five groups: negative control (Na-CMC), positive control (metformin), and three treatment groups receiving combinations of bitter melon leaf and insulin leaf infusions at doses of 1,000 mg/kgBW and 300 mg/kgBW, 1,500 mg/kgBW and 400 mg/kgBW, and 2,000 mg/kgBW and 500 mg/kgBW. Blood glucose levels were measured on days 0, 1, 7, and 14.*

The results showed that all combination doses significantly reduced blood glucose levels in alloxan-induced mice. Paired T-Test analysis demonstrated significant decreases before and after treatment. Compared to the negative control, all treatment groups showed significant differences. Dose 3 (2,000 mg/kgBW bitter melon leaf and 500 mg/kgBW insulin leaf) produced the greatest reduction, with an average decrease of 373.2 mg/dL, indicating the best antidiabetic potential.

Keywords: *diabetes mellitus, bitter melon leaves, insulin leaves, infusion, alloxan.*