

ABSTRACT

Asciiedo Pangestu 24020221140064. **Detection of Phytochemical Compounds and Evaluation of Antidiabetic Activity of Ethanol Extract of *Stevia rebaudiana* Leaves through α -amylase Inhibition** (under the guidance of Endang Kusdiyantini and Agung Suprihadi).

The prevalence of type 2 diabetes in Indonesia continues to increase, reaching around 13% according to data from the Ministry of Health, and has become a serious health problem due to unhealthy lifestyles, excessive sugar consumption, and obesity. *Stevia rebaudiana* is known as a natural sweetener that contains steviol glycoside compounds and has the potential to help regulate blood glucose levels. This study aims to detect phytochemical compounds in ethanol extracts of stevia leaves and evaluate their antidiabetic activity through α -amylase enzyme inhibition tests, which play a role in breaking down starch into glucose. The extract was obtained through maceration using 96% ethanol, then analyzed using Thin Layer Chromatography (TLC), FTIR spectroscopy, and Gas Chromatography–Mass Spectrometry (GC-MS). The results showed an R_f value of 0.64 on TLC, consistent with the rebaudioside A standard (literature 0.6–0.7), indicating the presence of sweet glycosides in the ethanol extract of *Stevia rebaudiana* leaves, the presence of characteristic functional groups on the FTIR spectrum, and the detection of several compounds such as hydroxydehydrostevic acid, quinic acid, coumarin, and other phenolic compounds through GC-MS. Compounds such as quinic acid are known to have pharmacological activities such as antioxidants, anti-inflammatories, and increasing insulin sensitivity. The α -amylase enzyme inhibition test showed that the ethanol extract of stevia leaves exhibited significant inhibitory activity in the formation of glucose from starch. These findings suggest that *Stevia rebaudiana* holds promise not only as a natural sweetener but also as a potential herbal antidiabetic agent.

Key words: alpha-amylase, antidiabetic, Stevia rebaudiana, natural sweetener, FTIR, GC-MS.