ANTIDIABETIC ACTIVITY OF SILVER NANOPARTICLE OF ETHANOLIC EXTRACT AND SILVER NANOPARTICLE OF WATER EXTRACT KEMBANG TELANG (*Clitoria ternatea* L.) AS INHIBITOR α-GLUCOSIDASE ENZYME

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ABSTRACT

Diabetes mellitus is a chronic diseases which is increasing in Indonesia. To minimize the side effects of antidiabetic drugs, natural materials such as Kembang Telang (*Clitoria ternatea* L.) petals are used as antidiabetic potential. Silver nanoparticles have been shown to have antidiabetic effects. This study aims to examine the making of silver nanoparticles of ethanol extract and water extract of Kembang Telang compared with the extract on the inhibitory activity of the α-glucosidase enzyme. In this research, it starts from the making of ethanol extract Kembang Telang with infundation modification method and water extract Kembang Telang using infundation method, biosynthesis of silver nanoparticles with bottom-up method, identification and characterization by visual observation, observation of surface resonance of plasmon using UV-Vis spectrophotometer, particle measurement using Particle Size Analyzer. Then the α-glucosidase inhibition activity was read absorbance using a UV-Vis spectrophotometer, continued the calculation of the inhibitory percentage. Percent of data were analyzed using oneway ANOVA with a confidence level of 95%. The results showed that silver nanoparticles of ethanol extract and water extract of Kembang Telang had wavelength, absorbance, particle size and index polydispersity depending on the range. Inhibition power, the α-glucosidase enzyme is determined from persent inhibition. From the calculation of percent inhibition obtained values of 70.44% for ethanol extract silver nanoparticles, 69.37% for water extract silver nanoparticles, 15.74% for ethanol extracts, 13.56% for water extracts, and 54.17% for Acarbose. ANOVA results showed a significant difference between silver nanoparticles with acarbose with a p-value<0.05 and also not significantly different between nanoparticle of ethanol extract and anoparticle of water extract with a p value>0.05. It can be concluded that silver nanoparticles of ethanol extract and water extract Kembang Telang have better inhibition than the extract and the difference in the solvent used does not affect the inhibition of the α-glucosidase enzyme.

Keywords: α-glucosidase enzyme inhibition, silver nanoparticles, ethanol extract and water extract of petal Kembang Telang (*Clitoria ternatea* L)