Antihyperglycemic Activity Tests Of Tamarillo (Solanum Betaceum) on Aloxan's Diabetes Rats

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Abstract
Tamarillo (Solanum betaceum) is one of the plants in Indonesia and is often used by humans for various diseases, one of the chemical ingredients of Tamarillo is flavonoids which are efficacious as alternative antidiabetic drugs. This study aims to determine the effect of Tamarillo syrup (Solanum betaceum) on reducing blood glucose levels in diabetic rats that are induced by intraperitoneal alloxan and find out the effective dose in reducing blood glucose levels. The animals tested were divided into 5 groups, each group consisted of 5 male white rats, namely Group 1 diabetes control (CMC 0.5%), comparison control group II (glibenclamide), and group III, IV, V given tamarillo syrup in a row 200 mg / kg body weight, 400 mg / kg body weight, and 600 mg / kg body weight. All groups were induced with alloxan on day 0 (after 17 hours fasting) intraperitoneally. Examination of blood sugar levels was carried out on the 4th, 7th, 10th and 14th days after administration of the test preparation. The result of test showed that Tamarillo syrup had antihyperglycemic activity. Tamarillo syrup 3 dose variations can reduce blood glucose levels. The dosage of 200 mg / kgBB and 600 mg / kgBB has a significant effect on reducing glucose levels but giving a dose of 400 mg / kgBB gives less optimal results. The larger dose of Dutch eggplant syrup is followed by a significant increase in the antihyperglycemic effect.

Keywords: Solanum Betaceum, Diabetic Rats, Alloxan, Antihyperglycemic.

INTRODUCTION
DM is a disease caused by a disruption in the metabolic system of carbohydrates, fats and proteins in the body. The lack of insulin production causes disruption of metabolism. Insulin is one of the hormones produced by beta cells of the island of Langerhans in the pancreatic gland (Utami 2003). The criteria for diagnosing DM are fasting glucose levels ≥ 126 mg / dL or at 2 hours after eating ≥ 200 mg / dL if glucose levels ≥ 2 hours after meals > 140 mg / dL and smaller than 200 mg / dL are expressed as weak glucose tolerance (Sukandar et al. 2008). Tamarillo is one of the plants found in Indonesia and is used for daily life. The benefits of Tamarillo are as follows thrush drugs, cancer, and constipation. Important minerals such as potassium, phosphorus and magnesium are able to maintain and maintain body health (Wiwick et al. 2014). Tamarillo has a number of nutritious chemical compounds that can be used as herbal plants, including flavonoids, tannins, terpenes and saponins (Sianturi et al. 2015). In previous studies it was known that the eggplant skin ethanol syrup can treat diabetes because of the flavonoid content found. Doses of 0.02 g / 200g BB in wistar pathway rats (Brenda et al. 2013). In this study, an effective dose of Tamarillo syrup will be examined in wistar rats to reduce blood sugar levels. Observations were made by looking at a decrease in blood sugar levels in mice induced by alloxan METHODE A Population and Sample
The population used in this study was the Tamarillo fruit obtained from Ngada, Bajawa taken in June 2018. The sample used in this study was Tamarillo from which reddish red color and was rather mature b. Research Variable The independent variable in this study was the Tamarillo ethanolic syrup in dose variations. Dependent variable is a decrease in blood glucose levels in the test animals after treatment with Tamarillo fruit ethanol syrup as a test group and comparative raw material for glibenclamide preparations. Control variable is the physical condition of the test animal which includes age, weight, strain, gender, laboratory conditions and practice c. Tool, ingredients, test animal1) Tool Tools for maceration include measuring cups, glass funnels, alarm cups, flannel fabrics and 100 ml dark colored bottles. The tool used to measure blood glucose levels is GlucoDr Biosensor AGM-2100 glucometer. Other tools are injection syringes, mice scales, analytic balance, oral syringes 2) Ingredients The material used for making syrup is 70% ethanol. The chemical used for making diabetes is used alloxan. The chemicals used as negative controls were 0.5% Carbocyt Methyl Cellulose (CMC) and positive control was glibenclamide 3) Test animal The test animals in this study were male white wistar strains, aged 3-4 months with a body weight of 150-200 g.d. Determination of the TamarilloT The first step carried out in this study was the determination of the Tamarillo plant. Determination to determine the correctness of the sample used in this study, in addition to determination, it is also necessary to look at plant morphological characteristics of the literature and prove it. e. Making Tamarillo syrup The pollinated simplicia is weighed as much as 400 grams, add 3000 ml of 70% ethanol sealing liquid to the powder and macerate for 3-5 days. Then the syrup obtained is evaporated in the rotary evaporator at a temperature of 600 C and then evaporated in a water bath to get thick syrup. Identify the content of chemical compound powder and Tamarillo syrup
Rats are weighed and grouped, fasted for 17 hours. On the first day, initial blood sampling is carried out before being treated. Then the initial glucose level (T0) is measured. Alloxan solution 150 mg / kg BB rats are injected intraperitoneally given after 1 day after blood collection so the mice do not stress. Induction of alloxan at a dose of 150 mg / kg peritoneally was able to increase blood glucose levels and rat pancreatic ß cell damage. Mice are declared hyperglycemic if blood glucose levels are > 200 mg / dL (Prameswari et al., 2014). Perform screening, only those with diabetes are taken. Then each group was given CMC 0.5% (diabetes control)