Potential Of Sambung Nyawa Leaves (Gynura Procumbens) As An Antidiabetic Medicine

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ABSTRACT

Diabetes mellitus is a metabolic disease characterized by an increase in blood sugar due to defects in insulin secretion, insulin sensitivity, or both. The number of people with diabetes mellitus in Indonesia has increased every year. The number of people with diabetes is 6.9% in 2013 to 10.9% in 2018. Various therapies have been carried out for the treatment of Diabetes Mellitus, one of which is herbal therapy. Gynura Procumbens is a plant that is widely used as a treatment for diabetes mellitus, kidney, rash and fever, and hypertension. The flavonoid content in Gynura Procumbens replaces the decrease in blood sugar. This review article attempts to explain the role of Gynura Procumbens as an antidiabetic therapy in previous studies. The method used in this article is through searching articles through the NCBI database and Google Scholar. The results of an article search found that Gynura Procumbens has antidiabetic potential which can reduce blood sugar in patients with Diabetes Mellitus.

1. Introduction

Diabetes mellitus is a group of metabolic diseases characterized by increased blood sugar due to defects in insulin secretion, insulin sensitivity, or both (Kharroubi, 2015). Symptoms that are complained of in diabetes mellitus sufferers are polydipsia, polyuria, polyphagia, weight loss and tingling sensation. Uncontrolled diabetes can cause serious damage to body systems, especially to nerves and blood vessels (Sarwar, 2010).

Diabetes Mellitus is one of the leading causes of death worldwide. There are 3.2 million deaths caused directly by diabetes each year. Within 1 minute, 6 people died from diseases related to diabetes (Tandra, 2017). In addition, people affected by diabetes mellitus have increased every year. The number of diabetics in the world has increased from 108 million in 1980 to 422 million in 2014 (Sarwar, 2010). Based on 2018 RISKESDAS data, the highest number of diabetes mellitus sufferers in Indonesia is DKI Jakarta, namely 3.4%, while the lowest is NTT, namely 0.9%. Then, the total number of diabetics also increased by 6.9% in 2013 to 10.9% in 2018 (Risksdas, 2018).

Treatment of diabetes mellitus has been using oral anti-diabetes drugs or insulin injections. Diabetics who undergo drug therapy experience side effects of increasing body weight, an increased risk of hypoglycemia and an increased risk of chematin (Gerstein, 2008). Thus, new strategies are needed for diabetes prevention and treatment. Among the best alternative therapies are herbal medicines that have been used since ancient times for the treatment of
diabetes mellitus (Rang, 2012).

The Indonesian government advises the public to take herbal medicines because of their low side effects. Gynura Procumbens is a fast growing herbal plant found in tropical Asian countries such as China, Thailand, Indonesia, Malaysia and Vietnam. In traditional medicine, this plant is widely used for the treatment of diabetes, kidney disease, rashes, fever, and hypertension (Tan, 2016).

2. Research Methods

The method used in writing this article is a literature review. The library sources used in this article consist of 20 libraries from books and national or international journals. Research literature sources in this study used NCBI and Google Scholar with the keywords Gynura Procumbens, Diabetes Mellitus, antioxidants, antidiabetic, and others. Selection of literature source articles is carried out by reviewing the title and abstract, namely discussing the potential of Gynura Procumbens as a diabetes mellitus drug. The year of publication of the library sources used in the writing of this article is from 2009 to 2019.

3. Results and Discussion

Research on the benefits of Gynura Procumbens was conducted by several researchers. The results of a study conducted by Sofia (2011) showed that the ethanol extract of the leaves of Gait Hidup (Gynura Procumbens) could reduce blood sugar levels in male mice (Mus musculus) induced by alloxan. The greater the dose of the ethanol extract of the leaves of Sambung Life given, the more effective it was in reducing blood glucose levels in alloxan induced mice with a p value <0.05 (Sofia, 2011).

In addition, according to Syawal (2015), it was found that there was a significant difference between the control group rats and the mice that were given the leaf extract of Sambung Hidup. The results showed that the leaf extract of Sambung Hidup with a dose of 2.0 g / kg BW (36.16%) had a better effect on reducing blood glucose levels compared to doses of 1.0 g / kg BW (31.13%) and 1.5 g / kg BW (33.15%), while the results of the calculation of the correlation coefficient show that there is no linear relationship between increased dose and an increase in the effect of decreasing blood glucose levels (Syawal, 2015).

Research also carried out by Uthia (2018) showed that the preliminary test of giving Sambung Hidup leaves ethanol extract was proven to reduce blood glucose levels in male white mice with diabetes mellitus induced by alloxan. The research data were analyzed to see whether or not it affected blood glucose levels. The results showed that at a dose of 50 mg / KgBB, the ethanol extract of the leaves of Sambung Life (Gynura Procumbens) had the effect of reducing glucose levels (Uthia, 2018).

In addition, research by Andriyani with the results of the data obtained using ANOVA analysis (α = 0.05) states that the optimal dose of the combination of the herbal ethanol extract of sambiloto and ginseng leaves, namely SASN 50:50, can reduce blood glucose levels by 42.86159%, reduce LPO levels by 0.01666 μM / g, increase GSH levels by 2.5066 mm free SH. Combination of ethanol extract of bitter and leaf herbs continuation of life is more effective at reducing blood glucose levels compared to giving alone (Andriyani, 2019).

The leaves of the Gynura Procumbens plant or often referred to as Kontak Nyawa are herbal plants belonging to the Asteraceae family. Connect Nyawa plants contain flavonoids, terpenoids and phenolic acids (Bodeker, 2009). This plant has a height of up to 3 meters or more, stems are angular, rather soft and watery. The leaves are oval with a light green color (Rahman, 2013). The leaves are 6 cm long and 3.5 cm wide. The tip of the leaf is pointed, the base of the leaf is rounded, the edge of the leaf is shallow and the petiole is 1.5 cm or more. Both surfaces of the leaves have fine hair with pinnate affinities (Akowuah, 2012).

The classification of Gynura Procumbens in the plant world can be seen in Table 1.

Gynura Procumbens contains flavonoids and phenolic compounds that act as antioxidants. In the management of diabetes mellitus, flavonoids exhibit strong antioxidant activity. One of the antioxidant effects is that it can increase insulin action. In addition, the ability of flavonoids as antioxidants can protect
against the adverse effects of hyperglycemia and increase metabolism and glucose uptake. In addition to their antioxidant effects, flavonoids can act on biological targets involved in type 2 diabetes mellitus such as α-glycosidase and DPP-4. Flavonoids can effectively prevent and / or manage type 2 diabetes mellitus by being anti-free radicals (Sarian, 2017).

Apart from that, Gynura Procumben also has a role in glucose homeostasis. Weight gain is an indicator of the efficiency of glucose homeostasis (Pareek, 2009). In diabetics, glucose metabolism is rare so that there is a breakdown of fat and tissue protein into energy which causes a reduction in muscle mass which results in weight loss (Attangwo, 2012). Gynura Procumben has several protective effects in controlling muscle wasting by reversing gluconeogenesis, an increase in insulin secretion or glycemic control (Pandhare, 2011).

Gynura Procumben also has the same anti-diabetic mechanism as the drug metformin. G. procumbens acts at a peripheral level having an insulin-like effect. This herb does not stimulate insulin secretion but resembles or increases insulin action. Its mechanism of action is to increase glucose uptake into peripheral cells.

G. procumbens was found to increase insulin-stimulated glucose transport across skeletal muscle membranes, similar to metformin. G. procumbens acts directly in glucose uptake at the peripheral level, either alone or as an insulin coadjuvant (Zurina, 2010).

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<th>Table 1. Gynira Procumbens classification</th>
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4. CONCLUSION

Diabetes mellitus is a metabolic disease characterized by increased levels of glucose in the blood. Treatment of diabetes mellitus used is oral anti-diabetes drugs (OAD) or insulin injections. However, there are some side effects to the use of these oral drugs so it is recommended to use herbal medicines.

Gynura Procumben is an herbal plant that contains flavonoids, terpenoids and phenolic acids. This plant can be used as an antidiabetic herbal medicine. The mechanism of action is to increase insulin sensitivity. This is related to increasing glucose uptake into peripheral cells so that glucose in the blood decreases.

The Gynura Procumbens plant can be used as an alternative medicine for diabetes mellitus because it contains flavonoids, terpenoids and phenolic acids, but there is still a need for further studies on possible side effects.

5. REFERENCES

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