

ANTIDIABETIC POTENTIAL OF SIAM PLANT (CHROMOLAENA ODORATA): AFRICAN EXPERIENCE

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WHO estimates globally of 150million people suffer from diabetes. Every 10-15 years, the number of diabetics in all countries of the world is doubling. Due to the high prevalence and increase in the number patients, diabetes mellitus is a social disease. So, it is no coincidence that this problem is given much attention by researchers and general practitioners.

Treatment of diabetes mellitus patients are set upon limitation in terms cost, efficacy, safety, side effects. Therefore, research for some natural products has validated the traditional medicinal claims source have medicinal and therapeutic effects and benefits for future perspectives.

Siam weed (*chromolaena odorata*) Asteraceae family, a flowering scrub weeds, has been known in Africa as medicine used in treating various ailments which includes diarrhea, skin diseases, wounds, diabetes, infections.

Siam weed phytochemical components are alkaloids, flavonoids, flavanone, essential oils, saponins, tannins and terpenoids, therefore its antidiabetes effect its the potentials of siam weed leaves extract and its bio-active compounds which contains in siam weed, thus made as an alternative for lowering the level of blood glucose.

Alkaloid and flavonoid are active natural compounds have hypoglycemic activity.

Flavonoids are a ubiquitous group of naturally polyphenolic compounds characterized by the flavan nucleus, abundant in plants performs several functions. Benefits having antiinflammatory effects, antibacterial, antioxidant, vascular reactivity, antithrombotic effects.

Tannins class of astringent, are polyphenolic biomolecules that bind and precipitate proteins and various organic compounds has some benefits as astringent, antibacterial, antioxidant, antidiarrheal. Moreover, tannins enhance the glucose uptake through mediators of the insulin signaling pathways such as PI3K and P38 MARPK activation and GLUT-4 translocation.

The reduction in blood glucose levels caused by phenocol compounds has been attributed to actions as a reduction in the absorption of nutrients, induction of B cells regeneration and a direct action on adipose cells to enhance insulin activity. Tannins have been described as anti-hyperglycemia agents, however ability of nuclear receptors to modulate wide varieties of genes reveals to be a target in treatment of diabetes or dyslipidemia disorders.

Saponin helps in to take blood glucose into cells. Alkaloid are secondary plant metabolites, alkaloid is a true natural compound that contains basic nitrogen atoms, has been active principles in antidiabetic potentials.

Other mechanism observed include reduction in total cholesterol, triglyceride, attenuation of glucose 6 phosphatase activity and improvement in the hepatic glycogen content.

The aim of research - to know antidiabetic potentials of siam weed extract for patients with type 2 diabetes mellitus.

Materials and methods. The study was conducted in a rural Nigerian region. Phytochemical analysis performed qualitatively to know the compound that has role as antidiabetic.

Phytochemical test was conducted by using tube test and the layer chromatography plate. Phytochemical analysis after the collection of the infused extract of siam weed, the phytochemical analysis was conducted in order to analyze the compounds of infused extract of siam weed.

The process of extract making obverted in temperature and making time to minimize the damage on the compound which contained in siam weed, specifically on the heating process. The material chromolaena odorata collected in fresh whole root sample. Roots was washed thoroughly under fresh water to remove every contamination, and then after where cut into pieces, dried for 2 weeks (37°C) and grounded using a grinder mill. A 50g was extracted with 200ml of methanol using soxhlet apparatus and the resulting extract was concentrated using evaporator.

Results. We studied 38 patients with type 2 diabetes mellitus who were taking anti-diabetic drugs (Glibenclamide 5 mg daily) for at least three months. To assess the effect of infusion of Siamese weed, we divided all patients into 2 groups: group 1 (18 patients treated diabetes with Glibenclamide) and group 2 (20 patients receiving Glibenclamide and Siamese weed extract). Fasting blood glucose was determined daily.

After 7 days of follow-up and detailed data collection, administration of chromoleana extract to patients with diabetes mellitus resulted in a progressive and statistically significant dose-dependent decrease in blood glucose levels by an average of 11.7% in the second blood group. No side effects or toxicity were reported.

Conclusion. Chromoleana odorata extracts exhibited antidiabetic properties. Based on results of phytochemical analysis bioactive antidiabetes potential of extract of siam weed are due to their constituent alkaloids, flavonoids, flavanone, essential oils, saponins, tannins and terpenoids.

Taking into account of the phytochemical composition of chromolaena odorata, we assume that long-term use of Siam weed in addition to hypoglycemic effect will have a positive effect on blood rheology, atherosclerotic processes, will demonstrate hepatoprotective, anti-inflammatory and antibacterial capabilities, which is extremely important for patients with diabetes mellitus.

The study of these additional potential therapeutic effects of Siam weed is a prospect for our further research.