

Periodic Research

Antidiabetic Effect of *Vinca rosea* whole Plant Extract Along with *Sesamum indicum* and *Piper longum*



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Abstract

Diabetes is one of the most affected diseases, which is affecting the humans. Many medications are available now a day to combat with this disease. Herbal medication is preferred for diabetes due to its least side effect therefore whole plant extracts of *Vinca rosea* along with *Sesamum indicum*, and *Piper longum* has been prepared as these plants have sugar reducing alkaloids in them. The extent of sugar reducing capacity of these plants was analyzed through whole plant extracts on diabetic humans. Objective of current study is to find out antidiabetic effect of *Vinca rosea* whole plant extract along with combination of *Piper longum* (Pippali), *Sesamum indicum* seed oil (Til Oil).

From the current studies it can be concluded that there is general decrease in blood sugar by oral ingestion of *Vinca rosea* whole plant extract. The decrease in blood sugar can be attributed to *vinca* alkaloids found in whole plant extract specially leaves which help to regenerate Beta cells of islets of Langerhans which produce insulin. Egvandoline

Keywords: Diabetes, *Vinca Rosea*, *Sesamum Indicum*, *Piper Longum*, Egvandoline.

Introduction

Diabetes is one of the diseases, which is affecting the human beings today. For the current study whole plant extracts of *Vinca rosea* along with *Sesamum indicum*, and *Piper longum* has been prepared as these plants have sugar reducing alkaloids in them.

Objectives of the Study

Objective of current study is to analyze antidiabetic effect of *vinca rosea* whole plant extract on humans along with combination of Til oil (*Sesamum indicum* seed oil) and Pippali (*Piper longum*).

Review of Literature

S. Suroowana K. B. Pyneeb M.F. Mahomoodally in the year 2019 studied the comprehensive review of ethnopharmacologically important medicinal plant species from Mauritius. In the year 2010 Md Faisal Ahmed, sayedmohannadkazinetal studied the Antidiabetic Activity of *Vinca rosea* Extracts in Alloxan-Induced Diabetic Rats. G. Sumana and S. A. Suryawashi in 2001 studied the Effect of *vinca rosea* extracts in treatment of alloxan diabetes in male albino rats. In the year 1999 R. N. Kulkarni, K. Baskaran, R. S. Chandrashekara, and S. Kumar studied the Inheritance of morphological traits of periwinkle mutants with modified contents and yields of leaf and root alkaloids. R. C. Cowley and F. C. Bennett in 1928 studied *Vinca rosea*. S. Nammi, K. M. Boini, S. D. Lodagala, and R. B. S. Behara in the year 2003 studied about the juice of fresh leaves of *Catharanthus roseus* Linn and found that it reduces blood glucose in normal and alloxan diabetic rabbits. S. N. Singh, P. Vats, S. Suri et al, (2001) studied the effect of an antidiabetic extract of *Catharanthus roseus* on enzymic activities in streptozotocin induced diabetic rats.

Materials and Methods

Vinca rosea, (Sadabahar), family Apocynaceae is a very commonly grown plant in India. Sadabahar is an evergreen shrub that is commonly grown worldwide both as an ornamental plant and for medicinal purposes. There are 2 varieties of *Vinca rosea* that are grown for its medicinal value (1) pink colored flower varieties (2) white colored flower varieties.

Piper longum, which belongs to family piperaceae, is also known for antidiabetic effect.

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Sesamum indicum belongs to family pedaliaceae, its seed oil act as a base for whole plant extract preparation.

Fig 1 Vincarosea



Fig 2 Piper Longum



Fig 3 Sesamum Indicum Seed Oil



Methodology

100 gms of *Vinca roseawhole* plant was surface sterilized and than crushed into paste with the help of grinder. 100gms Plant paste was then boiled in 500ml water on mild fire till the quantity is reduced to 250 ml. Sadabahar decoction was than filtered.50 gms of Sadabahar paste was mixed with 200 ml of Til oil along with and 10 gm of Pippali (*Piper longum*) powder. The content is than boiled on small fire till the water is evaporated.Oil is filtered after cooling and the whole plat extract of *vincarosea* with til oil and Pippali is ready.

Fig 4 Oven drying of Vincarosea



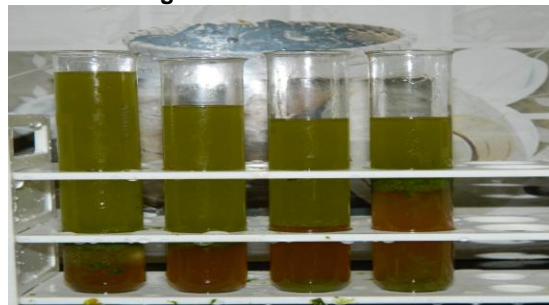
Fig 5 Plant paste of Vincarosea



Fig 6 Boiled Plant Paste



Fig 7 Whole Plant Extract



Results and Discussion

Five blood samples of diabetic patients were taken for sugar test. Control blood sugar reading was taken 1hr after breakfast. The diabetic patients were given 5ml plant extract orally with hot water just after control blood sample was taken. 5 Blood samples were collected from five diabetic patients (Sample 1,2,3,4,5) after 1 hour, 2hr, 3hr, 4hr and 5hrrespectively. The blood sugar level was analyzed by fully automatic robertic sugar analyzer. The sugar test readings are shown in Table 1.

Fig 8 Blood Sugar Analyzer



Table 1 Blood sugar sampling

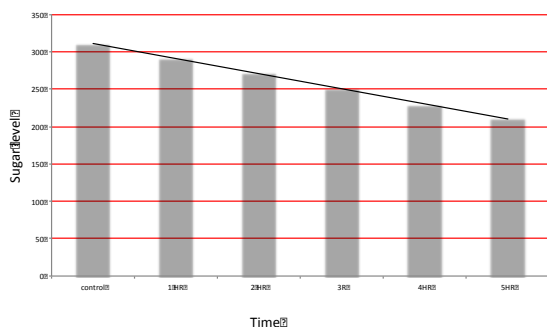
Blood sample	Control Sugar (mg/dl)	Blood sugar after 1 hr (mg/dl)	Blood sugar after 2 hr (mg/dl)	Blood sugar after 3 hr (mg/dl)	Blood sugar after 4 hr (mg/dl)	Blood sugar after 5 hr (mg/dl)
1	310	291	272	251	229	210
2	290	269	241	221	198	184
3	256	237	211	193	177	163
4	198	177	156	131	120	101
5	210	199	178	151	139	120

Observation

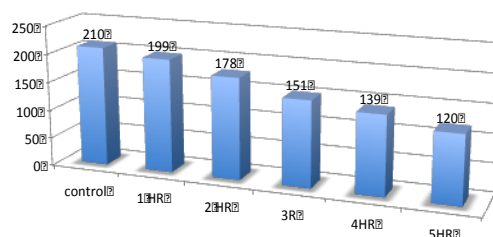
As per the blood sampling and thereafter sugar analysis it was observed that by giving 5ml of the plant extract of *vincarosea* to the diabetic patients there is decrease of 15 mg/dl to 20 mg/dl blood sugar per hour.

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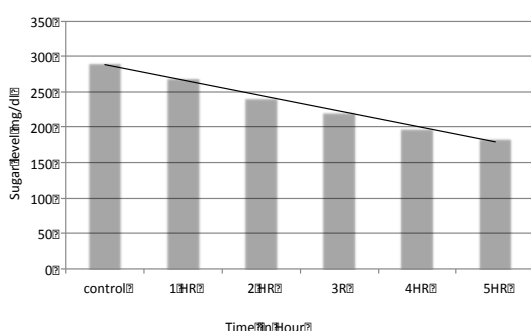
Sugar level of Blood Sample 1



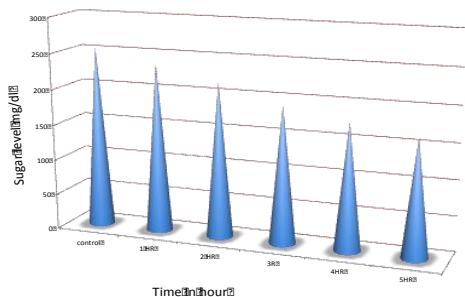
Sugar level of Blood Sample 5



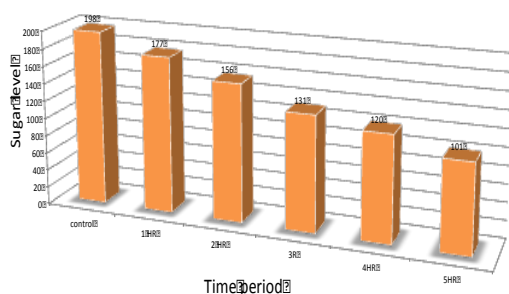
Sugar level of Blood Sample 2



Sugar level of Blood Sample 3



Sugar level of Blood Sample 4



Conclusion

It is concluded that there is general decrease in blood sugar by oral ingestion of *Vincarosea*, along with *Sesamum indicum*, and *Piper longum*. 5ml of plants extract has the ability to lower 15-20 dl/ml blood sugar so it can be concluded that 1ml plant extract can lower 3-4dl/ml of blood sugar per hour. Blood sugar in sample = 320mg/dl (non fasting). Normal non-fasting blood sugar level = 125mg/dl, Excess blood sugar, 320-125= 195mg/dl, 20mg/dl sugar can be decreases by 5ml extract. So $5/20 \times 195 = 48.75$ (Appx 50ml, range 40ml-50ml) plant extract should be taken to reduce blood sugar. The decrease in blood sugar can be attributed to *vinca* alkaloid called Egvanoline, which is found in whole plant extract specially leaves that help to stimulate Beta cells of islets of Langerhans to produce insulin.

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