

Study of the impact of anti-diabetic Role of *Catharanthus roseus* on human population

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ARTICLE DETAILS	ABSTRACT
Research Paper Received: 27-08-2026 Accepted: 26-09-2026 Published: 20-10-2026 Keywords: <i>Antidiabetic plants, Catharanthus, Catharanthine, Type 2-Diabetics, Hypoglycemic Index, Phenolic - alkaloid compounds,</i>	<p>Diabetes is the 2nd most challenging problem being faced by India after population explosion. It has been seen that by the end of 2025 every 5th diabetic person is an Indian. A big part of annual economy is spent on the treatment of diabetics; but traditional healers claim that their medicines (herbal preparations) are cheaper and more effective than modern medicines. Phenolic and alkaloid compounds in leaves of <i>Catharanthus</i> plants possess hypoglycemic potency. Catharanthine (Methyl (2 alpha,5 beta, 6-alpha)-3,4 -didehydroibogamine-18 beta-carboxylate) in <i>Catharanthus roseus</i> is an active constituents of leaves which show hypoglycemic property and effective in diabetes control. Therefore, a complete, comparative and comprehensive study was conducted on the selected diabetic population of Shankargarh area nearly Prayagraj, U.P., India, to assess the hypoglycemic effect of these plants. The efficacy of plant extracts was judged on the basis of hematological analysis of the blood samples of the said population.</p>

Introduction

An important component of “geography of health” is health care [1-11] and according to World Health Organization (WHO) more than 80% of the world’s population relies on traditional medicine for their

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primary health care needs. Use of herbal medicines in Asia represents a long history of human interactions with the environment. Plants used for traditional medicine contain a wide range of substances that can be used to treat chronic as well as infectious diseases. A vast knowledge of how to use the plants against different illness may be expected to have accumulated in areas where the use of plant is still of great importance [8,9, 12-19]. The medicinal value of plants lies in some chemical substances that produce a definite physiological action on human body. The most important of these chemical bioactive compounds of plants are alkaloids, flavanoids, tannins and phenolic compounds [20]. Tribes & folks depend on plant resources mainly for herbal medicines, food, forage, construction of dwellings, making household components, sleeping mats, and for fire. The use of medicinal plants as traditional medicine is well known in the rural areas of many developing countries [8,9,13-15,17-19]. Traditional healers claim that their medicines are cheaper and more effective than modern medicine. In developing countries low-income people such as farmers, people of small isolate villages and native communities use folk medicine for the treatment of common infections [15]. In general, these plants are used as folk medicines in the treatment of skin diseases, venereal diseases, respiratory problems, diabetes and nervous disorders; and the reports of working committee for Tribal Development (Govt. of India) during the 8th plan, recommendations of the 35th World Congress on Natural Medicines; Health Security Recommendations (No. 18) of the 83rd session of Indian Science Congress (1996), Comments of ICMR, recommendations of the National Seminar on the Tribal Health, Sagar (1996) and recommendations of the Symposium of Anthropological Perspective of Nutrition and Health (88th I.S.C. 2001) also strongly suggest that the common beliefs, customs and practices connected with health and diseases, strong magico-religious health care system developed by the tribal and folk population and their deep knowledge of flora, fauna and overall biodiversity of their area have been found to be intimately associated with the treatment of diseases, which could also help us in documenting and preserving the biodiversity as well as to provide an integrated and holistic approach to solve the health problems. Moreover, many of the medicinal plants and herbs are also part of our diet as spices, vegetables and fruits. The medicinal values of several such plants have been tested by trial and error method for a long time by different workers. Even today, great opportunities are still open for scientific investigation of herbal medicines for cure of several diseases. Earlier work done by the group of researchers in the Institute of Applied Sciences, Prayagraj (IASc.) [3,9,15,17, 18]paved the way for exploring the availability of different kinds of such medicinal plants in general and anti-diabetic plants in particular; and their possible role in prevention and control of diabetes, especially because, in last 30 years, India has witnessed a malignant rise in prevalence of diabetes mellitus (DM), particularly in urban areas. DM is a metabolic disorder characterized by hyperglycaemia, gluconeurea, negative nitrogen balance and sometimes ketonaemia. It

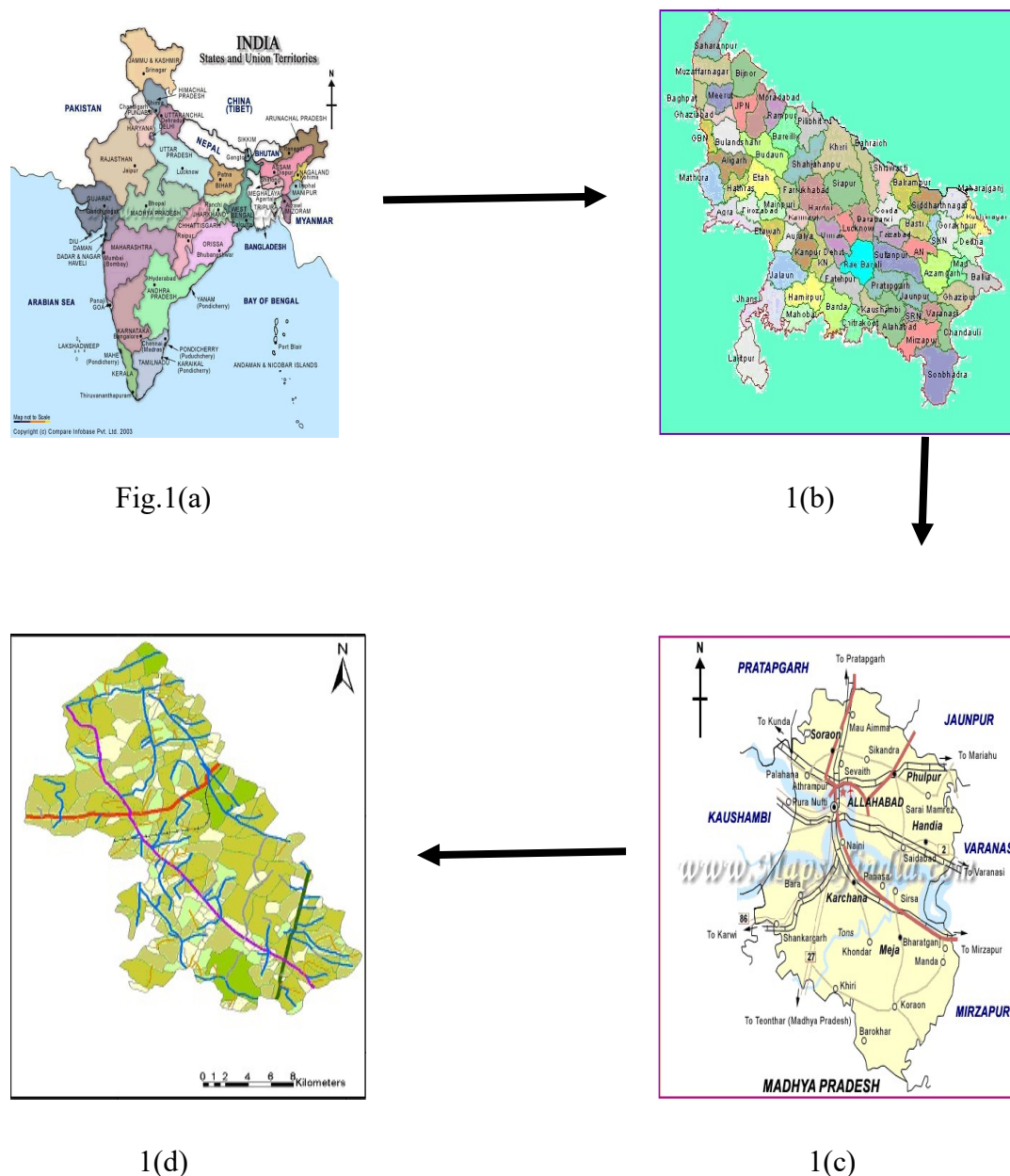
causes a number of complications like retinopathy, neuropathy, peripheral vascular insufficiencies [21]. The dramatic increase in the prevalence of diabetes can be attributed to several factors; linking to genetic makeup, obesity and sedentary life style [21]. There are two major type of diabetes Type-I or Insulin Dependent Diabetes Mellitus (IDDM) is an autoimmune genetic disorder resulting from an absolute deficiency of insulin due to destruction of insulin producing pancreatic beta cells; Type-II or Non-insulin Dependent Diabetes Mellitus (NIDDM) is a multifactorial disease. Which is characterized by hyperinsulinemia & hyperglycemia and also atherosclerosis, hypertension and abnormal lipid profile, collectively called syndrome X. Type-II insulin-resistant diabetes accounts for 90 to 95% of the diagnosed cases of the disease [22]. There is no single approach to treat this disease and usually a combination therapy is adopted from different approaches. Different type of oral hypoglycemic agents such as biguanides and sulphonylurea are available along with insulin for the treatment of diabetes mellitus [22] but have side effects associated with their uses. On the other hand several herbal medicines have also been found effective in preventing and curing diabetes with minimal side effects. About 800 plant species have been reported to possess anti-diabetic properties. Several plant species have been used for prevention and managing diabetes by the Native America, Chinese, South America and Asian Indians. A limited number of medicinal plant species have been studied and validated for their hypoglycemic properties using laboratory diabetic animal models and in clinical studies using human subjects; although several medicinal plants and their products (active, natural principles, and crude extracts) have been reported in literatures as having been used to control diabetes in the Indian traditional system of medicine called Ayurveda. Among these species, *Allium cepa*, [23-26], *Allium sativum* [23-27], *Aloe vera* [23-26], *Coccinia indica* [12,23-26] *Ficus bengalenensis* [23-26], *Gymnema sylvestre* [12,23-26, 28], *Momordica charantia* [12,23-26], *Ocimum sanctum syn. Tenuiflorum* [23-26, 29], *Trigonella foenum-graecum*[25-27 & 30], *Pterocarpus marsupium*[23-26], *Tinospora cordifolia*[23-26], *Eugenia jambolana*[23-26], *Syzygium cumini*[12 & 23-26], *Swertia chirayita* [23,24 & 26] *Caesalpinia bonducell* [23-26], *Mucuna pruriens* [23-26], *Catharanthus roseus* [12,15,17,18,26,29-32], *Stevia rebaudiana* [33 & 34], *Azadirachta indica* [26,32 & 35] and *Lagerstroemia speciosa* [17 & 18] are considered the most effective and more extensively studied in relation to diabetes and their complications. Additionally, limited number of plant species, some adapted to North America, such as *Rosmarinus officinalis* [25], *Ocimum gratissimum* [25] and *Morinda citrifolia* [25] have been evaluated for their hypoglycemic properties using laboratory animal models, therefore, the study was planned to derive the role of selected anti-diabetic plants in disease (DM) prevention and control, which are used frequently by the local population at Shankargarh, Allahabad.

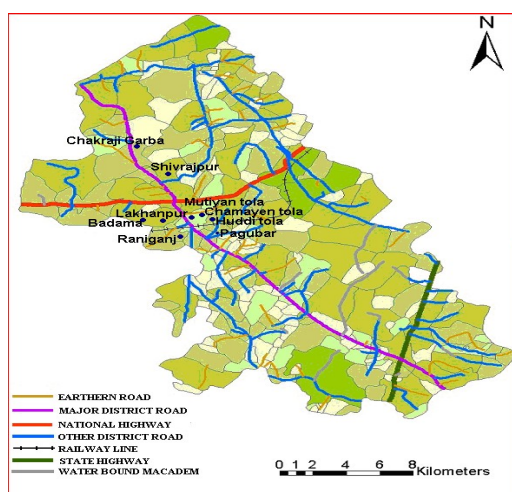
Figure Captions



Figure 1: Map of the study area a. India, b. Uttar Pradesh, c. Prayagraj, d. Shankargarh, and e. Ten villages of Shankargarh block

Figure 2: Photographs of *Catharanthus roseus*, Syn. *Vinca rosea*, (Common name- Sadabahar) a. flowering plants, b. single leaf, and c. Catharanthine [Methyl (2 alpha,5 beta,6 alpha)-3,4-didehydroibogamine-18 beta-carboxylate]





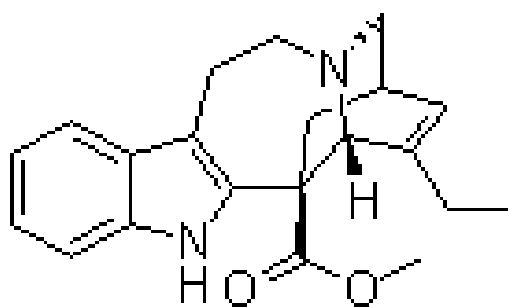
1(e)



2(a) Sadabahar: flowering plant



2(b) Single leaf



2(c)

Material and Method

Target Area and Literature Survey

As the researchers of IASc were already working in Vindhya area (Shankargarh), nearby Prayagraj therefore, the target population was selected from the same. (Map of the area-Fig. 1a,b,c,d & e). Vindhyachal range is low mountain range of Central India, extending in east-western direction from Varanasi to Gujrat State for a distance of 1100 km. (700 miles). The range separates the drainage basin of the river Ganga on the North from the Deccan Plateau on the South. Elevations range from 450 to 500 meters (1500 to 3000 ft) and reach a maximum of 1113 meters (3651 ft.). In Uttar Pradesh it includes South Prayagraj (as Shankargarh, Chakgaht etc.), Vindhyachal, Mirzapur and adjoining areas. As per earlier studies [3,8,9,15,17-19] done by the researchers of IASc, Prayagraj, on kols of Shankargarh area, a preliminary information was already available regarding their health status and ethnological knowledge ; but the said information was for a particular community only and a cross cultural approach was needed to acquire a comprehensive data about the general status of health of Vindhyan people; and also to enlist the major ethnomedicinal plants used by the local population, so that the trio of geo-socio-medico be analysed properly before starting the work. The preliminary survey of near-by areas of Shankargarh and connected literature revealed that the people in and around this region are using Sadaphuli, Jarul, Gurmar, Sweet leaf, Neem, Babool, Bel etc. [3,15,17,18, 25] for the cure of diabetes and related ailments. It was also found that their knowledge of ethnomedicines is although very rich but without any experimental evidences. Therefore, a vast survey of literature was done to have definite course of action. There are some useful reviews on Indian medicinal plants having blood sugar lowering potential [23,24,31 & 32]. Many useful herbs introduced in pharmacological and clinical trials have confirmed their blood sugar lowering effect & repair of beta cells of islets of Langerhans. Details of some potent Indian herbs, their recently reported pharmacological and clinical hypoglycemic efficacy, active chemical constituents, their mechanism of action and available toxicity status have been described by many; the brief details of which is given in Table 1.

Table-1: Details of some important Indian herbs having hypoglycemic efficacy

Scientific names	Family	Part used	Nature of extract	Hypoglycemic compound	Subject	Effects	References
<i>Acourita thurberi</i>	Asteraceae	Root	Aqueous decoction	Benzoquinone, perezone and	Normal & fasting mice and	Minor hypoglyc	[20 , 30]



				pipitzol	temporarily hyperglycemic rabbits	emic	
<i>Acacia arabica</i>	Arecaceae	Seed	Powdered	Arabiacin	Normal & alloxan-induced diabetic rabbits	Hypogly cemic	[26]
<i>Allium sativum</i>	Liliaceae	Clove	Ethanol, ethyl acetate and petroleum ether extract	Garlic oil, Allicin, S-allyl cysteine sulfoxise(SACS), diallyl trisulfide, Bis(allixinato) oxovanadium(IV)	Alloxan induced diabetic and mild diabetic rabbits, STZ diabetic , Normal, Ithyroxine(I-T4) induced hyperglycemic rats , Genetically diabetic KK- A(y)} & Type-1 diabetic mice	Anti- hypergly ccemic , hypoglyc emic, stimulate s β cell secretion	[23-26]
<i>Aloe arborescens</i> var. <i>natalensis</i>	Liliaceae	Leaf	Normal diet	Arboran A & B	Normal and alloxan induced diabetic mice	Hypogly cemic	[26]
<i>Anacardium occidentals</i>	Anacardia ceae	Stem bark	Aqueou decoction, extract and methanolic extract	Terpenoid, coumarin	Adrenalectomize d rat and type-2 diabetes mellitus among the Yoruba-speaking people of Western Nigeria.	Hypogly cemic, stimulate s pancreati c beta- cells	[26]
<i>Androgrophis paniculata</i>	Acanthac eae	Whole plant	Dried leaf powder with	Andrographolide s	Normal, alloxan- induced diabetic	Hypogly cemic,	[12]



			cow's milk and boiled rice and aqueous extract,		, STZ- diabetic rat, Insulin lacking diabetic rat	anti-hyperglycemic, increases glucose utilization and reduces glucose level in plasma	
<i>Acontium carmichaeli</i>	Ranunculaceae	Root	Normal diet	Glycans (Aconitan A,B,C & D)	Diabetic Rat	Hypoglycemic and Antidiabetic	[26]
<i>Aloe vera</i>	Liliaceae	Leaf	Dry sap and leaf pulp extract	Iophenol, 24-methyl-iophenol. 24-ethyl-iophenol ,Cycloartanol and 24-methylene-cycloartanol	Alloxan induced diabetic Swiss albino mice, diabetic patients, Normal fasted, oral glucose fed, STZ diabetic, type-1 & type-2 diabetic rat and NIDDM patients	Anti-hyperglycemic, hypoglycemic, improves plasma insulin level and increases glucose tolerance ,	[23-26]
<i>Bambusa vulgaris</i>	Graminae	Leaf	water extract	Propylene glycol	Alloxan diabetic rat	Hypoglycemic	[26]



<i>Bauhinia monandra</i>	Caesalpin iaceae	Leaf	Aqueous extracts	Quercetin derivative	Normoglycemic mice	Hypogly cemic	[26]
<i>Bauhinia divaricata</i>	Caesalpin iaceae	Leaf	Decoction	Sulfonylureas	STZ diabetic male wistar rats	Hypogly cemic	[20]
<i>Bauhinia variegata</i>	Caesalpin iaceae	Leaf & bark	Ethanolic extract	Flavonol glycosides	Mice	Insulin secreting activity	[20]
<i>Bidens odorata or Bidens pilosa var. radiata</i>	Asteracea e	Fruit, flower and other aerial parts	Aqueous and alcoholic extract, decoction and infusion	Polyacetylenic glucosides (2-β- D- glucopyranosylo xyl-1-hydroxy- 6(E)-tidecene- 7,9,11-tyrine and 3-β- D- glucopyranosylo xyl-1-hydroxy- 6(E)-tetradecene- 8, 10,12-tyrine)	Type-2 mice	Hypogly cemic	[20]
<i>Bougainvillea spectabilis</i>	Nyctagina ceae	Leaf	Methanolic and aqueous extracts	Pinitol alcohol	Diabetic murine model	Hypogly cemic	[26]
<i>Butea monosperma</i>	Fabaceae	Bark	Flower extract	Stigmasterol	Rats	Antidiab etic	[12]
<i>Caesalpinia bonducella</i>	Legumino sae	Seed & kernal	Petroleum ether, ether, ethyl acetate and aqueous & ethanolic extract	Triterpenoidal glycosides	Normal& Streptozotocin (STZ) induced rats and chronic Type-2 diabetic model in Long- Evans rats	Antidiab etic, hypoglyc emic & anti- hypergly cemic	[23, 24]
<i>Catharanthus roseus or</i>	Appocyna ceae	Leaf	Aqueous & Vacuum dried	Catharanthine Vindolinine	Normal and Streptozotocin	Hypogly cemic ,	[12,15,1 7,18,]



<i>Vinca rosea</i>			95% ethanolic extract, decoction and Infusion form	Lochnerine Tetrahydroalstonine Vindoline Leurosine Leurosine sulphate Ajmalicine	diabetic mice & Diabetic persons	anti-hyperglycemic & anti-diabetic	
<i>Coix lachrymal-jobi</i>	Gramineae	Leaf	Aqueous extract	Glycans A,B & C	Normal and alloxan diabetic mice	Hypoglycemic	[20]
<i>Coccinia grandis syn. Coccinia indica</i>	Cucurbitaceae	Leaf, Fruit	Homogenized freeze dried leaf, ethanolic, methanolic extract of leaf	Pectin	Fasted, glucose fed and hypoglycemic male albino rats, diabetic patients	Hypoglycemic, Suppression of glucose synthesis, gluconeogenic enzyme i.e. glucose 6 phosphate, increase insulin secretory activity, mimic insulin	[12,23,24]



						like activity	
<i>Eleutherococcus senlicossus</i>	Araliaceae	Root & rhizome	injection of syringing	Syringin & eleutherans A, B, C, D, E, F & G	Normal & alloxan diabetic rats and type-1 diabetic rats	Antihyperglycemic and hypoglycemic	[26]
<i>Eugenia jambolana</i>	Myrtaceae	Seed kernel (EJs-kernel)	Ethanollic extract	Triterpenoids, glycosides, saponins and flavonoids	STZ-induced diabetic, Alloxan diabetic rats	Anti-hyperglycemic	[23,24,]
<i>Ficus bengelensis</i>	Moraceae	Stem bark	Vacuum dried 95% ethanolic extract,	Leucocyanidin (3-O-β-D-galactosylcellobioside), Glucoside of leucopelargonidin, 3-O-α-L-rhamnoside, Leucodelphinidin, Pelargonidin, Leucopelargonitin, Phytosteriolin, Bengalinoside and Flavonoids,	Normal, alloxan diabetic, fasted and glucose induced hyperglycemic rats, diabetic patients	Hypoglycemic, lowers blood sugar, increases serum insulin and its effect, inhibits insulin degradation and enhances insulin secretion of β-cells	[23,24,26,53,83]
<i>Gymnema sylvestre</i>	Asclepiadaceae	Leaf	Oral administration of water soluble	Gurmarin & gymnemic acid 1-4 [Anti sweet	Type 2 patients, lowers fasting blood sugar	Reduces insulin requirement	[12,23-26,28]



			fraction G-3, G-4, alcoholic extract of leaves	principal] a mixture of 9 acidic glycosides.	level, normal and STZ diabetic, glucose fed rats,	ent, doubles the pancreatic islets and number of β -cells, increases insulin secretion, hypoglycemic, anti-hyperglycemic	
<i>Lagerstroemia speciosa</i>	Lathyraceae	Leaf & Ripe fruit	Methanolic and aqueous extract and in the form of admixture	Lagerstroemin (Ellagitannins), corosolic acid [2cs-hydroxyursolic acid], gallotannin (Penta-O-galloyl-glucopyranose = PGG)	3T3-L1 adipocytes as a cell model	Anti-diabetic	[17 , 18]
<i>Stevia rebaudiana</i> or <i>Stervia eupatoria</i>	Asteraceae	Leaf	Aqueous extract	Stevioside	Fructose rich chow fed & type 2 diabetic fatty rats	Antihyperglycemic and hypoglycemic	[26]

Preparation of the extracts of selected plants; and administration

Selection of plants

On the basis of the ethnobotanical data collection, customary believes and local availability of certain plants, 4 plants were finally selected for further study. Out of these 4 plants, 3 were found to be used by the local population for curing diabetes and these plants were found in abundance in this area. These were Sadaphuli (*Catharanthus roseus*) and Gurmar (*Gymnema sylvestre*) and Jarul (*Lagerstroemia speciosa*),. The 4th plant selected for study was not because of its availability in the local area or its antidiabetic property; but due to the dietary habit of the local population i.e. use of leaves of *Stevia rebaudiana* as sweetener was found prevalent in the diabetic patients. The description of the aforesaid plants, as per field studies was recorded in tabular form (Table 2); but leaves (Fig.2b) of *Catharanthus* only were collected to prepare extract for application.

Table -2: Description of plants collected for the study

S. No.	Name of the Plants	Soil type	Photoperiod / day	Intensity of light	pH of soil	Moisture	Rainfall
1.	<i>Catharanthus roseus</i> (Found in Vindhyan region)	Clay to sandy [Hot Wet]	6 to 14 hrs.	Average to intense	Wide range	may grow up to zero	Average
2.	<i>Gymnema sylvestre</i> (Found in Vindhyan region)	Clay loam	16 hrs.	25 ± 2°C	5.6 to 6.0	Moderate moisture	Average
3.	<i>Lagerstroemia speciosa</i> (Found in Vindhyan region)	variety of soil types (Light level to saline soil)	12 hrs.	27°C	4.0 to 4.4	Warm climate (Humidity 55 ± 5%)	Average
4.	<i>Stevia rebaudiana</i> (Not found in Vindhyan region)	Light to medium loamy clay in texture (low Carbon- 0.2%, high Nitrogen- 0.15%, P2O5 - 0.18%, K2O-	Average	Low	5.6 to 6	Moderate moisture	Average



		1.48%)					
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Collection of Plant material

For testing antidiabetic potential, only Sadaphuli (*Catharanthus roseus*) was selected. Fresh leaves of this plants (*Catharanthus roseus*) was collected from the area; leaves were washed under the running tap water followed by distilled water to remove dirt and soil particles, and shade dried for 15-25 days avoiding the denature of the phytochemical because of exposure to the sun.

Material used

Soxhlet apparatus, fresh leaves of plants, Ethanol (95%, v/v), 2 Lit. and 5 Lit. round bottom flask, crushing pans, 10 mesh sieve, Oven, Electric heater equipped with thermoregulator, 4 Conical flasks, Beakers (50ml., 100ml., 200ml., 250ml. and 500ml.), Buchner funnel, Filter papers, passing glass tube, Connector, Power supply, Electric board wire extension, Stand bars and clamps.

Extract preparation

Extract of these plants were prepared by using Soxhlet Extraction Method [32]. Shade dried leaves of the plant were crushed, powdered and filtered through 10-mesh sieve. Coarsely powdered material was kept in a 5 Lit. round bottom flask to which ethanol (95%, v/v) was poured through the wall and made the powder flooded properly then extracted twice at 60°C with double distilled ethanol (95%, v/v). Soxhlet was then equipped with condenser. Solvent is heated to reflux. Condenser condenses and cools the solvent and finally drips back to the flask. Process was repeated continuously for 36 hrs. for each sample. During this process, the non-volatile compounds also dissolve gradually in the solvent. The prepared extracts (500 ml each) were kept in four different sterilized bottles.

Application of extracts

As per method described above, the leaf extract of above mentioned plants was prepared and with the permission of Ethical Committee of the Institute (having Bioethics Expert from the Global Ethics Observatory, UNESCO) and help of a registered Medical Practitioner of Prayagraj, firstly very small doses of extract (0.5 ml.) were given to diabetic persons (total twenty- 10 detected during the hematological studies of the population; and other 10 detected independently by the PHC, as chronic diabetic patients). The administration was done orally; and every time precaution was maintained to apply the extracts before

the breakfast (early in the morning). The nutritional analysis of all the individuals were done before and after the experimental regime. All were prescribed a fixed diet pattern during the experimental duration; that too was determined as per their BMI and actual working hours. Therefore, no individual was given more than their required energy/nutritional value. Before administering the doses, their fasting and PP level (Post Parential) were tested as per standard methods [33-36]; and tabulated on day-1. Then the doses were administered for next 30 days with their consent.

Results and Observations

The results of literature survey are given in Table-1.

The description of selected plants and their further pictographic/figurative details are given in Table 2; fig.- 2(a,b, c), The results of haematological studies are given in Tables 3.

Table-3: Application of Alcoholic Leaf extract of *Catharanthus roseus* (0.5 ml. per day):-

Individual details					Day-1 st 15 th Nov. 2025		Day-30 th 14 ^h Dec. 2025	
Population sample	Sex	Age (yrs.)	Weight (Kg.)	BMI	Fasting (mg/ 100 ml)	PP (mg/ 100 ml)	Fasting (mg/ 100 ml)	PP (mg/ 100 ml)
1*	Male	55	60	25.64	162	220	120	149
2*	Male	50	62	24.91	165	217	125	155
3*	Male	50	60	25.31	167	208	119	157
4*	Male	55	60	25.97	160	216	128	158
5*	Male	60	61	25.10	159	215	126	159
6*	Female	50	60	25.64	158	198	123	149
7*	Female	52	58	26.12	165	213	128	154
8*	Female	55	57	24.05	155	189	122	151
9*	Female	60	63	25.30	158	209	126	158
10*	Female	50	60	25.31	160	218	118	155
11●	Male	53	57	24.57	170	189	126	158
12●	Male	54	62	25.66	179	213	128	154

13●	Male	50	60	25.31	178	214	122	151
14●	Male	55	60	25.97	185	217	128	158
15●	Male	59	58	24.65	190	213	119	154
16●	Female	55	62	25.83	188	208	119	157
17●	Female	57	62	24.87	158	196	126	158
18●	Female	58	58	25.65	186	209	126	158
19●	Female	57	61	25.45	177	217	126	154
20●	Female	50	64	23.87	187	213	128	158
Total(M+F)= 20		54.25	60.25	25.26	170.35	209.6	124.15	155.25
Average reduction in PP glucose level= 54.35								
Average reduction in fasting glucose level= 46.2								

* Individuals were found diabetic when their blood samples were tested.

● Individuals reported themselves diabetic when interviewed randomly in PHC. Their Age, Weight, BMI, Height, Fasting & PP levels were also recorded. Where, PHC= Primary Health Centres, BMI= Body Mass Index, and PP= Post Parential

Discussion

It was found that the extracts of Sadabahar are effective in lowering the glycemic index up to 45 to 55 indices (Table 3). In several earlier studies the *Catharanthus roseus* has been found effective in lowering the blood glucose level in rats/rabbits [31]. The hypoglycemic properties of *Catharanthus* is found to be associated with a number of alkaloids but what proved more significant was the independent discovery by a Canadian group at the University of Western Ontario and scientists at the Lilly Research Laboratories in Indian polis that some of the alkaloidal fractions from the leaves of this plant possessed marked oncolytic properties. As it was not possible to see the direct effect of extracts of this plant in a higher dose and that too for a longer period on human subject, we could only apply a very little dose for 30 days only but found a positive result in consonance with the earlier studies and also studies made earlier by the co-guide [17,18]. Rasineni *et.al.* have recently reported in the diabetic-treated rats that the lowering of plasma glucose and an increase in plasma insulin were observed after 15 days of administration of the sadabahar leaf powder; and by the end of the experimental period the plasma glucose had almost reached the normal level. The significant enhancement in plasma total cholesterol, triglycerides, LDL and VLDL-cholesterol, and the atherogenic index of diabetic rats were normalized in diabetic-treated rats. While, S K Prasad *et.al.* have reported a cumulative hypoglycemic effect of the aqueous extract of three plants including Sadabahar.

The hypoglycemic effect of *Catharanthus roseus* leaf extract suggests that active ingredients in the extract are responsible for an enhanced secretion of insulin. However, the possibility that enhanced tissue glucose utilization by *Catharanthus roseus* cannot be ruled out. Further work is required to fractionate, purify and identify the active ingredients present in the extract hence a required amount of extract has been preserved for further studies which could be done in next 2-3 years in a molecular laboratory having advance facilities.

Thus, in the end we may derive a conclusion that Sadaphuli plant be treated as hypoglycemic, but it's side effects and synergistic effects could be verified and confirmed only after more such observations; as also suggested by Ghosh [29] in his thesis; therefore, a small dose (say 0.5ml to 1 ml/day) of the aqueous/ethanolic extract of these plants (one type of dose at a time) is recommended for the diabetic patients till a more detailed study is conducted under keen observation.

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