

**ANTI-DIABETIC MEDICINAL PLANTS USED BY INDIGENOUS PEOPLE OF RANCHI
DISTRICT OF JHARKHAND, INDIA**Farha Fatma*¹ and Anil Kumar²*^{1,2}University Department of Botany, Ranchi University, Ranchi- 834008.***Corresponding Author: Farha Fatma**

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ABSTRACT

Plants have been the major source of drugs in Indian system of medicine and other ancient system in the world. Charak Samhita and Sushrut Samhita give extensive description on various medicinal herbs. Diabetes is one of the leading disease of the world. It is a long term condition that causes high blood sugar levels over a prolonged period. This is due to either the pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced. This paper enumerates traditional uses of various plant species belonging to few genera, which are used by tribal people of Ranchi District of Jharkhand for the treatment of diabetes. There are several glucose lowering drugs in the market, however they may have side effects such as liver cell injury, headache, dizziness and digestive discomfort etc. The natural medications with anti-diabetic activity are widely formulated because they are better compatible with human body, easily available and less side effects.

KEYWORDS: Ethno-medicinal, diabetes, antidiabetic, treatment, herbal.**INTRODUCTION**

In India the term ethno-botany was used by Kirtikar and Basu. According to them “ The ancient Indians be given the credit for cultivating what is now called ethno-botany”.^[1] The growth in the field of herbal medicine and drugs are gaining popularity in developing and developed countries because they have very less side-effects and are of natural origin. Some traditional medicines are derived from medicinal plants.

India is the largest producer of medicinal herbs and is called as botanical garden of the world.

Tribal system of medicine (hodopathy) cover many health related problems including cough, cold, diarrhoea, dysentery, hypertension, diabetes, gynaecological problems etc. The term ‘hodopathy’ has been coined by Hembrom, after his extensive work on herbal medicines that were in use by different tribes of Chotanagpur. Hodopathy means the tribal method of treatment with the indigenous herbs.^[2,3,4]

Ranchi is one of the most privileged place on earth that enjoys nature’s generosity in its fullness. The Ranchi district of Jharkhand state is highly rich in biodiversity and ethno-medicinal properties. It lies at 23 degree 22 minute N and 85 degree 20 minute E near Tropic of Cancer. Its elevation is 651 m above sea level. The district endowed with plant diversities due to its rich climatic conditions. People of different ethnicities have been dwelling in forests and living a primitive lifestyle.

The documentation and identification of medicinal plants, used by ethnic tribes of Chotanagpur plateau has been worked out.^[5] They are the main source of information and knowledge of these herbal, traditional, medicinally important plants on which their own healthcare system is based. They pass this valuable knowledge from generation to generation orally and this unwritten therapeutic knowledge need to be preserved with time. The utility of plant by the aboriginal people of Ranchi district for different purposes have been mentioned by Sahu *et.al.* in their project report on ethno-botanical studies of Ranchi district of Jharkhand, conducted during 2001-2004.^[6] The names of different medicinal plants of Chotanagpur and Santhal Pargana and the medicines made from them with the diseases against which it is being used as medicine has been published in the form of booklet having the title “ Adivasi Aushadh – Horopathy” in hindi.^[7]

MATERIALS AND METHODS

This study is based on extensive ethno-medicinal survey conducted in villages of Ranchi District of Jharkhand. The ethno-medicinal properties of different plants were recorded by consultation and interview from indigenous people of these areas including local people, healers, knowledgeable persons, vaidyas and local practitioners etc.

After documentation, plants were identified and kept in the Herbaria of University Department of Botany, Ranchi University, Ranchi, Jharkhand.

RESULTS AND DISCUSSION

This documentation is based on the information obtained from local people, practitioners, patients cured, healers, vaidyas etc. They believe in natural treatment of diabetes by some special herbal plant species.

Some of the important plants used for cure of diabetes are as follows:

1. *Azadirachta indica*

Family – Meliaceae

Local Name – Neem, Nimbay

English Name – Neem

Apart from having anti-diabetic activity, this plant also has anti-bacterial, antimalarial, antifertility, hepatoprotective and antioxidant effects.

2. *Allium sativum*

Family – Amaryllidaceae

Local Name – Lahsun, Lahsan Lassan

English Name – Garlic

Garlic is reported to be a wonderful medicinal plant owing to its preventive characteristics in cardiovascular diseases, regulating blood pressure, lowering blood sugar and cholesterol levels, effective against bacterial, viral, fungal and parasitic infections, enhancing the immune system and having antitumoral and antioxidant features.

3. *Aloe vera*

Family – Asphodelaceae

Local Name – Aloevera

English Name – Aloevera

Aloevera is used in multipurpose folk remedy. The plant can be separated into two basic products: gel and latex. Aloe vera gel is the leaf pulp or mucilage, aloe latex, commonly referred to as “aloe juice,” is a bitter yellow product.

4. *Curcuma longa*

Family – Zingiberaceae

Local Name – Haldi, Halodhi

English Name – Turmeric

Turmeric is a spice which helps give the food its yellowish colour. It is believed to have anti-oxidant properties that could help fight infection and inflammation. Research has suggested that taking turmeric could treat and prevent diabetes.

5. *Syzygium cumini*

Family – Myrtaceae

Local Name – Jam, Jamun

English Name – Java plum

Jamun is known to improve blood sugar control. It contains no sucrose and has hypoglycemic effect that helps reduce blood and urine sugar levels. The seed of Jamun is also very beneficial in controlling diabetes.

6. *Swertia chirata*

Family – Gentianaceae

Local Name – Chirayta

English Name – Chirayta

Chirayta is a herb. Some people use it as bitter tonic. It helps in lowering blood sugar level and hence used as a medicine.

7. *Gymnema sylvestre*

Family – Asclpiadaceae

Local Name – Gudmar, Gurmar

English Name – Gurmar

It is considered to have anti-diabetic properties. It is also called “gurmar” in hindi which means “destroyer of sugar”.

8. *Phyllanthus emblica*

Family – Phyllanthaceae

Local Name – Amla, Aonla

English Name – Indian gooseberry

Amla is a good source of Vitamin C, which is required for repairing of pancreatic tissues. Consumption of amla make body more responsive to insulin, thereby reducing blood glucose level of diabetics.

9. *Momordica charantia*

Family – Cucurbitaceae

Local Name – Karela, Kareti

English Name – Bitterguard

Momordica charantia is commonly used as an antidiabetic and antihyperglycemic agent in India as well as other Asian countries. It is an excellent beverage for diabetics.

10. *Ocimum tenuiflorum*

Family – Lamiaceae

Local Name – Tulsi, Tulshi

English Name – Holy basil

It is commonly known as Tulsi. Since ancient times, this plant is known for its medicinal properties. Oral administration of plant led to decrease in the plasma glucose level. This plant also showed antiasthmatic, antistress, antibacterial, antifungal, antiviral, antitumor, gastric antiulcer activity, antioxidant, antimutagenic and immunostimulant activities.

11. *Aegle marmelos*

Family – Rutaceae

Local Name – Bel, Beli, vilvam

English Name – Bel

Bel has so many health benefits. It has been proven effective in controlling diabetes.

12. *Murraya koenigii*

Family – Rutaceae

Local Name – kari patta

English Name – Curry leaf

Curry leaves is the best natural method to keep blood sugar level in check. It affects insulin activity of the body and reduces blood sugar level.

Some important plants with antidiabetic and related beneficial effects is given in Table 1.

S.No.	Botanical Name	Family	Local Name	English Name
1.	<i>Azadirachta indica</i>	Meliaceae	Neem, Nimbay	Neem
2.	<i>Allium sativum</i>	Amaryllidaceae	Lahsan, Lissan, Lahsun	Garlic
3.	<i>Aloe vera</i>	Asphodelaceae	Aloevera	Aloevera
4.	<i>Curcuma longa</i>	Zingiberaceae	Haldi, Halodhi	Turmeric
5.	<i>Syzygium cumini</i>	<i>Syzygium cumini</i>	Jamun, Jam	Java plum
6.	<i>Swertia chirata</i>	Gentianaceae	Chirayta	Chirayta
7.	<i>Gymnema sylvestre</i>	Asclpiadaceae	Gurmar, Gudmar	Gurmar
8.	<i>Phyllanthus emblica</i>	Phyllanthaceae	Amla, Aola	Indian gooseberry
9.	<i>Momordica charantia</i>	Cucurbitaceae	Karela, Kareli	Butterguard
10.	<i>Ocimum tenuiflorum</i>	Lamiaceae	Tulsi	Holi Basil
11.	<i>Aegle marmelos</i>	Rutaceae	Bel, Beli, Vilvam	Bel
12.	<i>Murraya koenigii</i>	Rutaceae	Kari patta	Curry leaf

CONCLUSION

Diabetes is one of the most common disorder in both developing and developed countries. Different plants with medicinal properties have been explored in the area, for the treatment of diabetes. In the present investigation attempts have been made to document and compile different ethno-medicinally important indigenous plants so that maximum utilization of these plants in the cure of various diseases and in the preparation of drugs could take place. It could be expected that identified plants in the study may be useful for future experimental and clinical studies, and the development of future therapeutic for diabetes.

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