

SOME COMMON WEEDS USED AGAINST DIABETES MELLITUS IN JHARKHAND

KUNUL KANDIR and K.K. NAG

Plant Taxonomy, Ethnobotany and Medicinal Plant Laboratory, University Department of Botany, Ranchi University, Ranchi, India.

In the present investigation first hand information of medicinal weeds effective against diabetes mellitus and their therapeutic action was gathered from tribal medicine men and other experienced tribals. Some of the example of these plants are *Argemone mexicana*, *Boerhaavio diffusa*, *Cassia tora*, *Centella asiatica*, *Cuscuta reflexa*, *Mimosa pudica*, *portulaca oleraera*, *Portulaca pilosa*, *Scoparia dulcis*, *Solanum xanthoearpum*, *Sphaeranthus indicus*, etc.

Keywords : Hypoglycaemic; Medicinal; Weeds.

Diabetes is a chronic metabolic disorder that develops when the pancreas no longer produces sufficient – Insulin. The blood sugar level rapidly elevates and the body becomes unable to use the energy contained in the sugar, leading to weakness and eventually, unconsciousness. It is a leading cause of blindness in people ages 25 to 74, damages nerves, the heart and the blood vessels and may results in the amputations of limbs.

Jharkhand state is very rich in diversity of medicinal plants. The population of the area has distinct – traditions and taboos in their lives. Like wise they have certain traditions to cure prevailing human ailments. They have good ideas about such plants, which prevent them from many diseases viz. diabetes, jaundice, dysentery, malaria etc. The wealth of wild flora is one of the vital resources having significant bearing on health, economy and environment. Conservation and traditional utilization of this limited natural resources must be given increased priority before it is too late.

In various tribal families of Jharkhand the medicine system is coming down from generation to generation by words or by practice. The knowledge about uses of herbs is now confined to a few tribal families in remote areas of the region. The area lies between 20°58' and 27°31' N latitude and 88°32' E longitude. The greater portion of the area is under reserved forests. Forests are mainly mixed deciduas type. Sal is the dominating tree. The area is subtropical. Summer is mild attaining an average maximum temperature 36.66°C in the month of May, whereas winter is cold, average minimum temperature being 9.8°C in December. Humidity is high during rainy season, average being 88.08% in the August.

The area is tribal dominated. Main tribes of this area are Munda, oraon, Santhal, ho, Kharoa, Sabbar, Birhor, Karmali, Chero. The major occupation of the people is agriculture.

Method of Study : Frequently field trips were conducted from 1994 onwards. Many medicine men were interviewed with the help of questionnaire for gathering first hand information regarding the medicinal weeds. Field studies in village surrounding and crops fields were undertaken with them to recognize and collect the plants. The data gathered on ethnomedicinal uses of various plants species in a particular village were repeatedly confirmed in other villagers.

The investigated plants were identified with the help of flora, Botany of Bihar and Orissa¹. Scientific techniques were used to prepare herbarium specimen² which were maintained in the Herbarium of University, Department of Botany, Ranchi University, Ranchi. Photographs of some plants were taken during the field tours. The observations were recorded in Table 1. The plant species are arranged alphabetically with their botanical names with family, local names, parts used, chemical constituent and method of use.

The population of study area has a deep knowledge about the plants of their surroundings. The neglected plants weeds also possess medicinal properties. All the investigated plants are very much effective against diabetes mellitus. They contain chemical constituents and some of them have received scientific verification by modern biological researches. Some earlier scientists reported a significant antidiabetic activity in the plant extract in albino rats³. Leaves and seeds of *Cassia tora*

Table 1.

S.No.	Botanical name	Family	Local Names	Parts used	Chemical constituent	Use
1.	<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Chichiri (M,S)	root	Betain Achyranthine	a) One inch root piece is chewed for twenty days. It is repeated after 20 days. a) Paste of the rhizome is mixed with one cup of water and taken in the morning.
2.	<i>Acorus calamus</i> L.	Araceae	Hajam (M) Chornach (S) Bach (H)	Rhizome	Calamenoil, calamene, eugenol	a) Decoction of 10 gm stem is made and one cup is taken in the morning thrice in a week. b) 5 gm stem is chewed and juice is intaken thrice in a week.
3.	<i>Andrographis paniculata</i>	Acanthaceae	Charaita (M,S) kalmegh (H)	Whole plant	Andrographin Androgra phoiide, Flavanoids	a) One teaspoonful root juice is taken on empty stomach in the morning for 3 days.
4.	<i>Argemone mexicana</i> Linn. (white Variety)	Papveraceae	Rangaini (M,S)	Root	Allocriptopine, berberine, cryptopine	a) Plants are used as sag. 5 - 7 leaves are taken in the morning.
5.	<i>Boerhaavia diffusa</i> Linn.	Nyctaginaceae	Kecho ara, (M) Khapra sag (S) Punarnawa (H)	Whole plant, Leaves	Alkaloids B-sitostrol Flayone glucose	a) Leaves are eaten fresh or cooked to make a sag or one teaspoonful dried powder is taken daily.
6.	<i>Cassia tora</i> Linn.	Papilionaceae	Chakor (S) Chakunda (M)	Leaves Seed	Anthraglucosides, chrysofenoly, Rhein seeds contain oleic, linolic and palmitic acid.	b) Seed powder is used as coffee.
7.	<i>Centella asiatica</i> Linn.	Apiaceae	Chokeara (M) Beng Sag (S) Brahmi buti (H)	Whole plant	Hydrocotylin, Asiatico side, Brahmo side, brahminoside, Brahmic acid, Centricacid, sugar, Amino acids etc.	a) Root paste is taken with one cup of water b) 5 leaves are chewed and juice is in taken c) Leaves are cooked as sag d) Leaf powder is taken on teaspoonful daily.
8.	<i>Cucumis trigonus</i> Roxb	Cucurbitaceae	Dimbu (M,S)	Fruit	Myriocarpin cucurbitacin - C	Fruit slices and dried, fried and eaten.

S.No.	Botanical name	Family	Local Names	Parts used	Chemical constituent	Use
9.	<i>Cuscuta reflexa</i> Linn.	Convolvulaceae	Amar bel (H, S)	Stem	Scoparone, Melanethin, quercetin, hyperocide	a) Stem is made into paste and rubbed in the sole of foot.
10.	<i>Mimosa pudica</i> Linn.	Mimosaceae	Lajwanti (S, H)	Whole plant	Armino acid (Mimosine) Steroid B. Sitossterol	a) The root paste is mixed with one cup of water and taken on empty stomach. b) The paste of whole plant is taken in the same way.
11.	<i>Portulaca oleracea</i>	Portulacaceae	Golgola sag, Dal sag, Dali ara	Whole plant excluding root	Vitamins C, B, B ₂ , Ca, na, K Salt, Nicotinic & oxalic acid	a) Plant is cooked as satg.
12.	<i>Portulaca pilosa</i> Linn.	Portulacaceae	Forenoon (E) flowering plant	Leaves	NA	a) 10 leaves with equal number of black peeper is taken on empty stomach for 20 days.
13.	<i>Scoparia dulcis</i>	Scrophulariaceae	Herem Tasad, (M) Mitha ghass (S)	Whole plant	Root contains alkaloid and a bitter substance amellin	a) Plant is made into paste mixed with one glass of water and taken on empty stomach in the morning.
14.	<i>Solanum xanthocarpum</i>	Solanaceae	Rangaini Junum (M) Rangaini (S) Choti kateli (H)	Whole plant	Steroids, Terpenoids, Alkalioids, Tannins. Fe, Al, Ca, Mg, Na	a) Decoction of whole plant is taken (one cup) on empty stomach in the morning.
15.	<i>Sphaeranthus indicus</i>	Asteraceae	Kardhani Tasad (M) Kardhani ghass (S)	Whole plant	Essential oil Methyl chavicol sphaerene. Leaves contain alkaloids	a) The root paste mixed with one cup of water and taken on empty stomach. One teaspoonful root powder can also be taken.

are also very much effective in maintain the blood sugar level. Earlier scientists^{4,5} reported the hypoglycaemic and hypocholesterolemic effect of *Cassia tora* seeds and found the maximum lowering effect in total blood cholesterol level by 2.09%.

The medicinal herbs used by the tribals for the treatment of diabetes are cheap, simple, easy to produce and administer. In a cross verification with actual users many of them respond favourably.

The herbal drugs cure diabetes by stimulating the pancreas to secrete insuline by itself. They act at the root cause by restoring normal function of the organ, instead of providing a substitute for the organ while modern medicine advocates.

Acknowledgement

Author is thankful to Dr. (Mrs.) Radha Sahu, Head, Department of Botany and Dr. R.K. Pandey former Head,

Department of Botany, Ranchi University, Ranchi for providing all necessary facilities.

References

1. Haiens H H 1921-1925, The Botany of Bihar and Orrisa, 3 Vols. London, (Reprint by Oversease Book distributions, Dehradun.
2. Jain S K and Rao R R 1977, A handbook of field and herbanium method. Today and Tomorrow Pub., New Delhi, India.
3. Gupta S S *et al.* 1967, Antidiabetic effect of *Tinospora Cordifolia*, part-I. *India J. Med. Res.* 55 733-745.
4. Singh K N and Mishra V 1979, Hypoglycaemic and Hypochoterolemic effect of *Cassia obtusifolia* seeds. *Med. and Surg.* 198.
5. Sinha R K 1996, Ethnobotany - The Renaissance of Traditional tribal medicine, INA Shree Pub. 231 - 233.