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EFFECT OF SOME HERBAL RECIPES IN CONTROLLING DIABETES IN WESTERN ASSAM (INDIA)

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ABSTRACT

In this paper an attempt has been made to document the plants that are used in the treatment of diabetes in different parts of western Assam. Besides documentation the mode of preparation, description of health condition, causes, symptoms, and preparation of the medicines in detail, dosages and administration, advice on diet all are collected properly in the field as described by the local traditional herbal practitioners. Here 10 very common herbal recipes are presented in very simple way that are often practiced traditionally by the local heelers of Western part of Assam(NE India)

KEYWORDS: Diabetes, herbal, Western Assam, heelers, traditional.

INTRODUCTION

Diabetes is a condition where the amount of glucose in blood is high. This is because the body cannot use the glucose properly. The main cause behind this is that the pancreas doesn't produce any insulin or not enough insulin, to help glucose in entering body cells or the insulin that is produced does not work properly known as insulin resistance. Thus insulin is the hormone produced by the pancreas that allows glucose to enter the body's cells. This is very important because inside the cells it is used as fuel to perform various activities of the body. So in diabetic condition the body cannot make proper use of this glucose and builds up in the blood.

There are two main types of diabetes-Type 1 and Type 2. In Type 1 diabetes there is no insulin to unlock the cells. This is more severe form of diabetes which usually develops in children or teenagers (though it can also develop at any age). So it is known as Juvenile diabetes. Insulin serves as a key to open cells to allow the cells to enter inside to perform as

source of energy. Without insulin there is no key, so the sugars build up in the blood. This result the body cells starve from the lack of glucose.

The most common form of diabetes is called the Type 2 diabetes which usually develops after the age of 35, some younger people also facing this problem. Here the patient is able to produce some of their own insulin often it's not enough. Sometimes the insulin doesn't work which try to serve as key to open the body's cells to allow the glucose to enter. This is known as insulin resistance. Importance is given on diet and exercise. If sugar levels are still high, oral medicines are used. In some cases insulin injections are necessary.

The global prevalence of diabetes is estimated to increase, from 4% in 1995 to 5.4% by the year 2025. WHO has predicted that the major burden will occur in developing countries. Studies conducted in India in the last decade have highlighted that not only is the prevalence of diabetes high but also that it is increasing. Diabetes mellitus is a complex metabolic disorder resulting from either insulin insufficiency or insulin dysfunction. Type I diabetes (insulin dependent) is caused due to insulin insufficiency because of lack of functional beta cells. Patients suffering from this are therefore totally dependent on exogenous source of insulin while patients suffering from Type II diabetes (insulin independent) are unable to respond to insulin and can be treated with dietary changes, exercise and medication. Type II diabetes is the more common form of diabetes constituting 90% of the diabetic population. Symptoms for both diabetic conditions may include: (i) high levels of sugar in the blood; (ii) unusual thirst; (iii) frequent urination; (iv) extreme hunger and loss of weight; (v) blurred vision; (vi) nausea and vomiting; (vii) extreme weakness and tiredness changes etc.

Though pathophysiology of diabetes remains to be fully understood, experimental evidences suggest the involvement of free radicals in the pathogenesis of diabetes(Mader, Z.1998).

Many traditional medicines in use are derived from medicinal plants, minerals and organic matter (Peterson, DB. 1985). In Indian systems of medicine most practitioners formulate and dispense their own recipes .India is the largest producer of medicinal herbs and is called as botanical garden of the world **(**Sharma, RD. 1986).

Studies conducted in India in the last decade have highlighted that not only is the prevalence of diabetes high but also that it is increasing rapidly in the urban population (Shani *et al* 1974).

In this paper an attempt has been made to document the plants that are used in the treatment of diabetes in different parts of western Assam. Besides documentation the mode of preparation, description of health condition, causes, symptoms, preparation of the medicines in detail, dosages and administration, advice on diet all are collected properly in the field as described by the local traditional herbal practitioners.

STUDY AREA

Western Assam is located at the extreme western part of Assam it extends from $89^0 49' 20''$ E longitude to $91^0 48' 16''$ longitude and $25^0 27'$ N latitude to $26^0 54''$ latitude covering lower Brahmaputra valley. Within this area we have seven districts out of which Barpeta and Nalbari districts were visited for extensive data collection. Nalbari with a longitudinal extension of $91^o 15' 8''$ E to $91^o 30' 42''$ E and latitudinal extension of $26^o 12'$. N to $26^o 45' 10''$ N latitude and an area of 2257 sq.km. Barpeta district $90^o 45' 11''$E longitude to $91^o 50' 4''$ longitudes and $26^o 25' 5''$ N latitude to $26^o 45''$ latitude with an area of 3345sq.km. The total population of Western Assam is 707421 which is 27 percent of Assam's total population covering an area of 15.619 sq.km. which constitutes about 20 percent of the total area of Assam. It covers eight districts-Dhubri, Kokrajhar, Bongaigaon, Chirang, Goalpara, Barpeta , Baksa and Nalbari.

MATERIALS AND METHODS

The study was carried out from 2012 to 2014. Here Primary data were collected by using a typical questionnaire in various localities of Western Assam. Collected were done in various fields and household survey were also done, extensively by frequent visit in different seasons. Household survey had been done to document the edible wild vegetables they use. This survey was conducted in various villages of the study area, Ethno botanical informations were also collected. The collected specimens were made into herbarium by following the standard herbarium method (Jain *et al* 1977). Then these were identified following literature and were confirmed by comparing them with BSI (Shillong) herbarium and Central National Herbarium (Kolkata). The recipes are presented in tabular form as well as mentioning their mode of preparations just below each recipe.

RESULT AND DISCUSSION

After collection of primary data from field meeting the traditional heelers the recipes are presented in the following form.

Herbal Recipe-I

Sl. No.	Botanical Name	Family	Vernacular name	Parts used	Quantity
1	*Plumeria alba* L.	Apocynaceae	Guloncha	Roots	10 gm

In this simple herbal recipe 10 gm roots of *Plumeria alba* L. is washed thoroughly and crushed slightly. This plant material is then allowed to soak in one cu of water and kept overnight. In the next morning the root soaked water is prescribed to take orally before food.

Herbal Recipe-II

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Syzygium cumini*(L.) Skeels	Myrtaceae	Kolajamu	Seeds	A few numbers

Black Jamun [*Syzygium cumini*(L.) Skeels] is a very popular seasonal fruit in the study area. After consuming the pulp of the fruits the seeds are collected and washed thoroughly and allowed to dry. Thus this item is very easy to get as the fruit is often consumed seasonally by the people and very much available in it's season that is in summer. The dried seeds are made into fine powder using grinder.

One teaspoonful of fine powder is prescribed to person suffering from high blood sugar. This is given at the rate of ½ teaspoonful at night before food or in the morning in empty stomach. This is often found to be very effective to control high blood sugar level.

Herbal Recipe-III

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Ocimum sanctum* L.	Lamiaceae	Tulosi	Leaves	5
2	*Catharanthus roseus* (L.) G. Don.	Apocynaceae	Nayantora	Leaves	5
3	*Azadirachta indica* A. Juss.	Meliaceae	Neem	Leaves	7

The leaves of all the three plants i.e. *Ocimum sanctum* L.; *Catharanthus roseus* (L.) G. Don. & *Azadirachta indica* A. Juss., are grinded and leaf juice is extracted. The leaf extract is mixed with little water in such an amount that the mixture becomes ½ cup. This half cup of

juice is prescribed to take orally continuously for 15- 30 days. This is a very effective medicine to control sugar level in blood in Type-2 diabetes.

Herbal Recipe-IV

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Trigonella foenum-graecum* L.	Papilionaceae	Methiguti	Seeds	½ teaspoonful

The seeds of Fenugreek[*Trigonella foenum- graecum* L] are allowed to soak in ½ cup of water for the whole night. In the next morning the seed soaked yellowish water is allowed to take in empty stomach. This is found to lower the level of sugar in blood. The seeds can be dried, kept and reused as spice. But cannot be used again for medicinal purpose.

Herbal Recipe-V

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Azadirachta indica* A. Juss.	Meliaceae	Neem	Leaves	10 g
2	*Clerodendrum viscosum* Vent.	Verbenaceae	Bhetaiteeta	Leaves	10 g
3	Ananas comosus	Bromeliaceae	Anarosh	Leaves	10 g
4	*Sesbania sesban*(L.) Merr.	Papilionacea	Jayantiteeta	Leaves	10 g
5	*Andrographis paniculata*(Burm. f.) Wall. ex Nees	Acanthaceae	Kalmegh	Leaves	10 g

All the five herbs are crushed and mixed with 5 litre of water. This mixture of water is allowed to boil in such a way that the amount lowers down to 2 liters. After removing all the herbal wastes from the mixture it is again allowed to boil till only ½ liter of water remains at last. This is prescribed to take at the rate of 3 teaspoonful twice daily. This is given once in the morning in empty stomach and once at night. According to the patients this preparation has very positive role in lowering diabetic sugar.

Herbal Recipe-VI

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Syzygium cumini*(L.) Skeels	Myrtaceae	Kolajamu	Bark of the tree	10 gm

The extract from the fresh bark of black cumin is extracted. This extract is given to patients suffering from diabetes once in the morning in empty stomach.

Herbal Recipe-VII

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Centella asiatica* L	Apiaceae	Manimuni	Leaves and tender shoots	10 gm

Ten gram of the herb is taken and made into fine paste. This paste is prescribed to individuals having high blood sugar.

Herbal Recipe-VIII

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Catharanthus roseus* (L.) G. Don.	Apocynaceae	Nayantora	Leaves	3

The leaves of Periwinkle[(*Catharanthus roseus* (L.) G. Don)] are taken and made into paste. The leaf paste is allowed to take orally in the morning.

Herbal Recipe-IX

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Tinospora cordifolia* (Wall.) Hook.f. & Th.	Menispermaceae	Sogunilota	Stem	1 inch

Stem of *Tinospora cordifolia* (Wall.) Hook.f. & Th. is soaked overnight in about 1 glass of water. This very much bitter tasted water is prescribed to person suffering from high blood sugar.

Herbal Recipe-X

Sl. No.	Botanical name	Family	Vernacular name	Parts used	Quantity
1	*Oxalis corniculata*L.	Oxalidaceae	Tengesi	Tender shoots	10 g

Approximately 10 g of tender shoots of Sorrel i.e. *Oxalis corniculata*L is steamed in a bowl keeping inside a pressure cooker having hot rice just after removal of hot vapour. This can be consumed by person suffering from diabetes.

Besides these particular herbal recipes some other herbs are also seen to be used or often prescribed to persons having diabetic problem. Mention may be made of plants like-roots of

fruits of Saraca asoca (Roxb.) de Willd.; latex of *Acacia farneciana* (L.) Willd., cucumber, leaves of Cajanus cajan(L.) Huth. and many more.

Centella asiatica L

*Oxalis corniculata*L

Ocimum sanctum L.

Clerodendrum viscosum Vent.

CONCLUSION

Though diabetes is a life long physical it can be prevented or can be controlled by the use of some herbs or herbal preparations or by avoiding some edible items, doing regular exercise, avoiding mental pressure, controlling diets etc. Many herbs are found to be very much effective but there is need for proper scientific analysis and all other aspects regarding proper dose, proper process of preparation. Proper method of collection and other related informations that too very proper scientific way.

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