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RESEARCH ARTICLE

TRADITIONAL USES OF SOME MEDICINAL PLANTS OF HAMIRPUR DISTRICT OF HIMACHAL PRADESH FOR THE TREATMENT OF DIABETES

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Abstract

Diabetic problem is the common problem among the people of this region. This region is well developed by all means; still the peoples of this zone have a good deal of knowledge on local plants used for many diseases such as jaundice, piles, skin diseases and diabetes etc. The traditional healers have ahuge amount of knowledge of medicinal plants which are used for diabetic problems and other health problems. The present study reveals the use of 19 plants especially used to cure diabetic problem.

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Introduction

Diabetes mellitus is one of the most common chronic disease in nearly all countries. This disease is characterized by hyperglycemia resulting from reduced secretion of insulin, often coupled with reduced sensitivity to it's action (Insulin resistance) diabetes mellitus fall in to three broad categories. Type 1, Type 2 and Gestational diabetes. Type 1 diabetes mellitus is characterized by loss of insulin producingβ-cell of islet of langerhans in the pancreas leading to insulin deficiency. This types of diabetes can affect the children or adults and is traditionally termed "Juvenile diabetes" as it represents a majority of diabetes cases in the children. This type is less common and has lower degree of genetic predisposition. Type 2 diabetes mellitus is the most common type characterized by insulinresistance which may be combined with relatively reduced insulin secretion. This type has higher degree of genetic predisposition and generally has late onset (past middle age). It may occur due to abnormalities in gluco -receptors of β-cells, reduced sensitivity of peripheral tissue to insulin, reduction in the number of insulin receptor and down regulation of these receptor.

The paper provides the information on 19 medicinal plants which are used for the treatment of diabetes. Traditional medicine remains an integral part ofprimary health system in this area .

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These plantshold a great promise to enhance the health of peoples of this region. This ethnic knowledge is falling prey to lure of modernization; therefore an urgent need was felt to study and document this precious knowledge for posterity. This paper discusses the house hold remedies practiced by people this region for the treatment of diabetes. A lot of work has been done on the medicinal plants of India, but a little information is available on plants used for diabetic problems in Himachal Pradesh.

REVIEW OF LITERATURE

Ethnobotany is totally in virtually a new field of research, if in this field plants investigated thoroughly and systematically, it will yield result of great value of the archeologists, anthropologist, plant geographer, enthnobotanist, linguistics, botanists and phytochemists. After the time of Harshberger (1896) to the present date,

several authors have tried to give a description of subject ethnobotany and its scope, methodology, it's various disciplines, sub-disciplines and potential etc.

Schutles (1960) had written on tapping our heritage ethnobotanicallores. He had suggested three methods of ethnobotany among the primitive peoples. He also gave some examples of the plant used during ancient period. Schutles (1962) outlined the role of ethnobotanist in the search of new medicinal plants. So, this was a paper on subject of ethnobotanyon a specialized line i.e. medicinal plants. Archeological plant remain, notes on plant collections and herbaria, literature survey, field studies, Jain (1964) wrote on the role of botanist in folk lore research. He writes that folklore research involve the study of all aspect of intellectual and material culture of indigenous or backward people. Jain (1965C) outlined the prospects by some new or less known medicinal plants resources. Sharma (1976) studied some useful wild plant of Himachal Pradesh. Uniyal and Chauhan (1982) studied commercially important medicinal plant of the Kullu forest division in H.P. Jain (1986) gave an overview of the subject ethnobotany, and indication of the significant research during last thirty year in this field and also showed how ethnobotany is an interdisciplinary science. Schutles (1986) tried to bring the attention of scientists to ethnobotanical conservation. For many years, he has been engaged on the studies in pristlineforest of the Amazon and other regions of tropical South America. Arora (1987) described ethnobotany and it's role in the domestication and conservation of native plant genetic resources. He gave the detail account of this important area where ethnobotany have still a great to do. Manilal (1989) had thrown light on the linkage of ethnobotany with other science and disciplines. The important fields like food and nutrition, defense and survival, sociality and culture, religion, medicine, art and literature, mythology, anthropology, archeology, forestry, and agriculture, economics, language, history and politics and conservation etc. are the major field to the research is linked. Uniyal (1989) highlighted the Garwhal Himalaya in his "Notes on the Ethnobotany of Lahoul, a province of the Punjab". BrijLalet.al (1996) described the plants used as ethnomedicine and supplement food by Gaddis of Himachal Pradesh, India. Kapur S.K. (1996) highlighted the tradionally important medicinal plant of Bhaderwah hills. Chauhan N.S. (1999) described the medicinal and the aromatic plants of Himachal Pradesh. Singh S.K. (1999) worked on the ethno-botanical study of the useful plants of the Kullu district in Himachal Pradesh. Sharma et. al (2000) studied the ethnobotanical studies of Gaddi- a tribal community of the Kangra district, Himachal Pradesh. Singh and Kumar (2000) studied the ethnobotanical wisdom of Gaddi tribe inthe western Himalya (Himachal Pradesh) Thakur S. (2001) described the ethnobotany of Rawalsar (Mandi District), Himachal Pradesh. Sharma et al (2003) gave an account on the commercially importance of medicinal and aromatic plants of Parvati Valley (Himachal Pradesh). Thakur et al (2004) described the characterization of some traditional fermented food and beverages of Himachal Pradesh. Warman (2004) studied the medicinal commercial religions and ornamental properties of various trees of India in "Trees of India" Kala (2005) described on the ethno-medicinal botany of the Atapani in the Eastern Himalya Region of India. Jain et al (2006) worked on the Ethnobotanical Survey of Sariska and Siliserh Regions in Alwar district of Rajasthan, India. BrijLaland Singh(2008) find out the indigenous herbal remedies to cure skin disorders by natives of LahaulSpiti, Himachal Pradesh.Prakash&Aggarwal(2010) highlighted the traditional uses of medicinal plants of lower foot-hills, Himachal Pradash. Sharma et. al. (2010), describe about anti-diabetic potential of alkaloid rich fraction from Capparis decidua on diabetic mice. Kaur, et al(2011) studied the uses

of plants in control of different diseases in Mandi district, Himachal Pradesh. Kharwal and Rawat(2012) studied ethnobotanical uses of herbal shampoo of Shivalik hills, Himachal Pradesh..Kumar and Choyal (2012) investigated traditional phytotherapyfor Snake bites used by the rural people of Hamirpur district of in Himachal Pradesh, India. Kumar and Choyal (2012) gave an account on the ethno botanical notes on some plants of Hamirpur district of Himachal Pradesh used in the treatment of Arthritis, rheumatism and other inflammatory disorders. Kumar and Choyal (2012) reported the traditional uses of some plants of Hamirpur district of Himachal Pradesh for the treatment of Jaundice, Hepatitis and other liver disorder. Kumar and Choyal (2012) gave an account on ethnobotanical notes on some plants used for the treatment of leucorrhoea and other gynecological problems in Hamirpur district of Himachal Pradesh.Kumar and Choyal(2013) threw light on the traditional health cure practices used for respiratory disorder by the rural people of Hamirpur district of Himachal Pradesh.Kumar and Choyal (2O13)) recorded the ethno-medicinal uses of some plants of lower foot –hills of Himachal Pradesh for the treatment of Oral health problems and mouth disorder. Kumar et.al.(2013) worked on the ethnobotanical survey of medicinal plants used for the treatment of different diseases in Bikaner district of Rajasthan.

STUDY AREA

Hamirpur district is situated between 76°18' – 76°49' East longitude and 31°52'30" North Latitudes. The track is hilly covered by Shivalik range and the elevation varies from 450-11000 meters. This region is rich in diverse flora and suitable for ethnobotanical exploration various plants are used for many health problems and diseases especially diabetes.

MATERIAL AND METHODS

Intensive ethno botanical exploration were undertaken in selected places of Hamirpur district to find out various medicinal plants used for problems of diabetes either in flowering and fruiting stage. The freshly collected samples of plants were arranged properly with in the folded sheets of pressing papers (12"/18"), each of which was placed between two dry blotters of same size. The whole piles of blotters and pressing sheets was then locked up in a field press for 24 hours. Since drying of the plant was done without heat, at needed five changes of blotters and pressing sheets properly spread over a span of 10 days. Each specimen was mounted on a white card sheer (11.5"/16.5") by using gum paste. To know the uses of plants, different categories of people like experienced and knowledgeable informants were repeatedly interviewed. Specific questions based up on performa designed by Jain and Goel (1995) were asked and the resultant information was recorded in the ethnobotanical field notebook along with important medicinal uses.

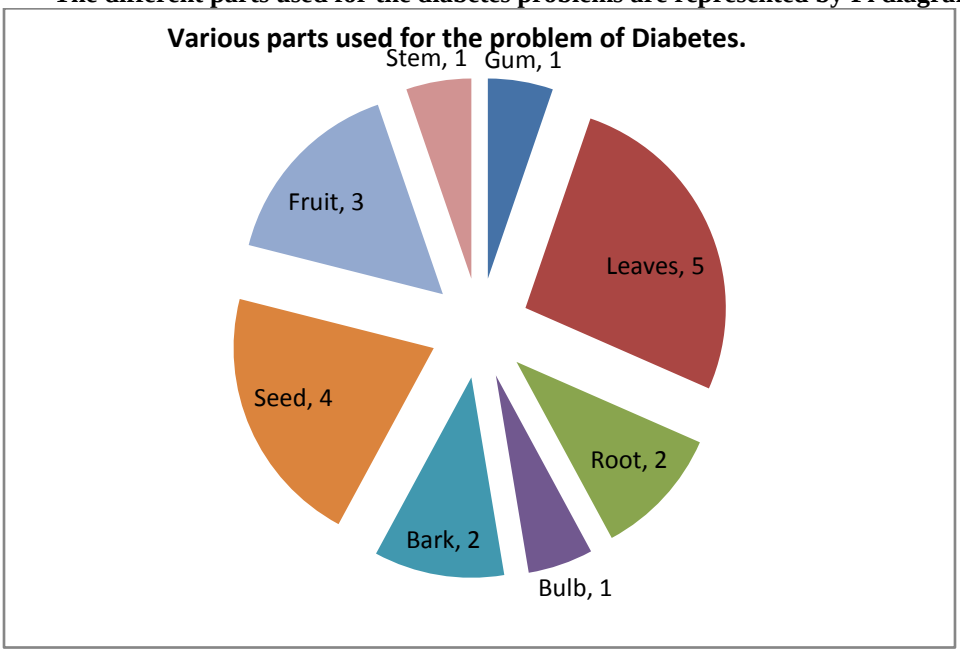
OBSERVATIONS

Table: A list of medicinal plants used for various diseases along with part/parts used for the treatment of diabetes:

Sr. No.	Scientific Name	Family Name	Local Name	Plant Part(s) used	Preparation and mode of use
1.	Acacia nilotica (L.)Delile	Fabaceae	Kikar, Babul	Gum	Gum along with the latex of Calotropisprocera is given to cure diabetes.
2.	Aloe barbadensisMiller.	Liliaceae	Kabbarya, Aloe, Alovera	Leaves	Juice extracted from leaves used for the treatment of diabetes.
3.	Aeglemarmelos(L.) Corr.	Rutaceae	Bil, Blpatri	Leaves and fruits	Leaves and unripe fruits decoction of the plant is taken for diabetes.
4.	AzadirachtaindicaA.	Meliaceae	Neem	Leaves	Powder of leaves areused

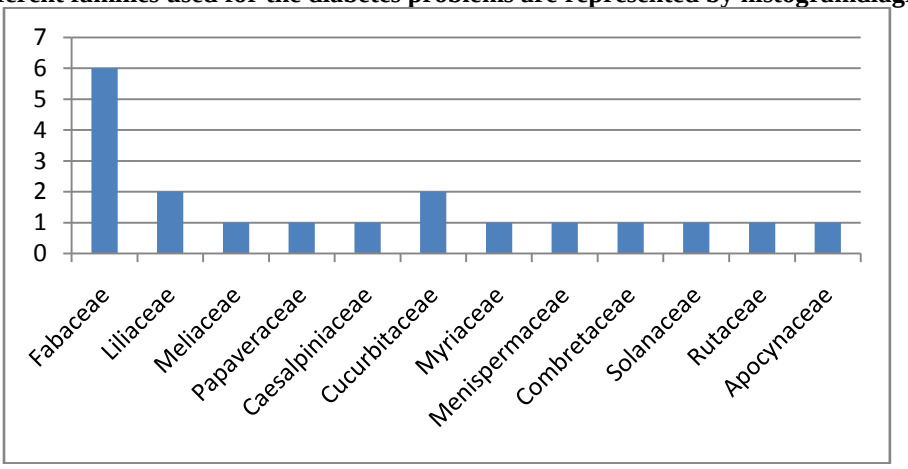
	Juss				for treatment of Diabetes.
5.	Argemone Mexicana L.	Papaveraceae	Bharbhand	Root	Root power is used in case of the diabetic problem.
6.	Allium sativumLinn.	Liliaceae	Lahusan, Garlic	Bulb	Bulb of the garlic is proved to be anti-diabetic and used for treatment of diabetes.
7.	Cassia fistula Linn.	Fabaceae	Kaner, Amaltas	Bark	Bark powder is used in the treatment of diabetes.
8.	Cassia occidentalisLinn.	Caesalpiniaceae	Baru, elwan, relu	Seed	Seed powder is used in case of diabetic problem.
9.	DalbergiasisssoRoxb.	Fabaceae	Sisham, Talhi	Leaves	The extract of leaves is used in case of diabetic problem.
10.	Momordicacharantia L.	Cucurbitaceae	Karela	Fruit	Fruit is cooked as vegetable which is useful in case of diabetes. Juice extracted from the fruit is used in case of Diabetes.
11.	MomordicadioicaLinn.	Cucurbitaceae	Kakroon	Fruit	Fruit cooked as vegetable and 20ml. of it's juice prescribed once a day to control diabetes.
12.	Pongamiapinnata(Linn.) merr.	Fabaceae	Karanja, Karanjoatra	Bark	Bark powder is useful in case of the diabetic problem.
13.	Syzygiumcumini(L.)	Myrtaceae	Jamun	Fruit, Seed	Fruit juice of this plant is used in case of diabetic problem and seed powder is also used for diabetic problem.
14.	Tinosporacordifolia Miers	Menispermaceae	Giloe, Gulje	Stem	Dried stem pieces extracted is used in case of diabetic problem.
15.	TerrninaliaarjunaW. &Arn	Combretaceae	Arjun	Leaves	Decoction of leaves cures diabetes.
16.	Trigonellafoenum-graecumLinn.	Fabaceae	Methi	Seeds	5-10 gram of powdered seed is taken daily with cold water is an easy remedy for diabetes.
17.	Tamarindusindica Linn.	Fabaceae	Imli	Seeds	Seed powder is used for the treatment of diabetes.
18.	Vincarosea (L.) G. Don	Apocynaceae	Sadabahar	Leaves	Leaves or Leaves powder is used for the treatment of diabetes.
19.	Withaniasomnifera Dunal.	Solanaceae	Ashvagandha	Leaves and Roots	Influsion of leaves is prescribed as medicine to cure diabetes root powder is also used in case of diabetes.

The different parts used for the diabetes problems are represented by Pi diagram :-



The number of the different plant parts used for diabetes problems.

The different families used for the diabetes problems are represented by histogramdiagram :-



The number of the different families used for diabetes problems.

DISCUSSION

The present study revealed the information of plants used for diabetic problems. These plants are arranged in alphabetical order; with their family, local name, part/ parts used and folk use. The present study includes 19 plants belonging to 12 families for diabetic problems. The predominant families are Fabaceae with 6 plant species, Liliaceaeand Cucurbitaceaewith 2 plant species, and other families with one plant species used for diabetic problems. Out of 19 plant species, leaves of 5 plant species, seed of 4 plant species, fruits of 3 plant species, root and bark of 2 plant species, bulb , stem and gum of one plant species are used for the treatment of diabetic problems.

Acacia nilotica (L.)DelileFabaceae

Aloevera(L.) Webb and Benth.Liliaceae

Aeglemarmelos(L.)Corr.Rutaceae

Azadirachataindica A. Juss .Meliaceae

Argemone Mexicana .Papaveraceae

***Allium sativum*Linn.Liliaceae**

Cassia fistulaLinn.Fabaceae

Cassia occidentalisLinn.Caesalpinia

DalbergiasissooRoxb.Fabaceae

MomordicacharantiaL. Cucurbitaceae

MomordicadioicaLinn.Cucurbitaceae

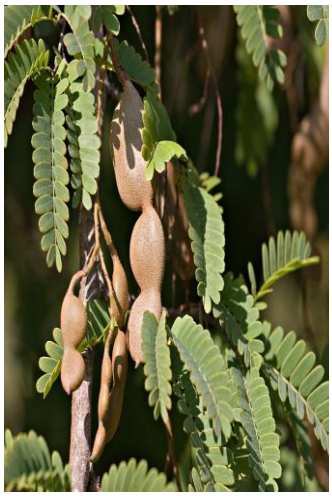
Pongamiapinnata(Linn.)Merr. Fabaceae

Syzygiumcumini(L.)Myrtaceae

TinosporacordifoliaMiersMenispermaceae

Terminaliaarjuna. Wt. &Arn.Combretaceae

Trigonellafoenum-*graceum*Linn.Fabaceae



TamarindusIndica L. Fabaceae

VincaRosea-(L.) G. Don Apocynaceae

***Withania somnifera Dunal.*(Solanaceae)**

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