

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

186,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Some Folk Antidiabetic Medicinal Herb of Himachal Pradesh

Monika Rana and Meenakshi Rana

Abstract

The Prevalence of Diabetes Mellitus (DM) is increasing day by day at an alarming worldwide. As per the statics of International Diabetic Federation, currently worldwide approximately 463 million adults (20–79 years) affected with diabetes that is expected to increase rise to 700 million by 2045. Diabetes and its complications imposes an economic loss to people with diabetes and their families, and to health systems and national economy. Diabetes is a complex disease which link with multiple of factors. Present review document the information of traditional used Antidiabetic plants by the inhabitants of Nadaun, District Hamirpur, Himachal Pradesh, India. During the survey 31 Medicinal Plants have been documented on the basis of information collected from the respondents of the study area.

Keywords: diabetes, ayurveda, Himachal Pradesh, traditional medicines

1. Introduction

Diabetes mellitus (DM) is a serious lifelong disease characterized by elevation of blood glucose level in the body resulting from the defects in insulin secretion and insulin resistance [1, 2]. The global diabetes prevalence for all age-groups was estimated to be 9.3% in 2019 rising to 10.2% in 2030. The prevalence is lower in rural than the urban areas [3]. The total number of people with diabetes is estimated to rise from 171 million in 2000 to 366 million in 2030. Among DM, about 90 percent of population affected with Type 2 DM [4]. In addition to hyperglycemia, diabetes also associated with various vascular complications, which are the major causes of morbidity and death in diabetic Patients [5].

In Ayurveda Diabetes Mellitus (DM) is referred to as Madhumeha (means sweet urine disease). Madhumeha consists of two words-‘madhu and meha’ where ‘madhu’ denotes sweetness and ‘meha’ stands for urination. In Ayurveda, plants are known to be excellent source of drugs. Plant based drugs have been in use against various diseases since time immemorial. There is large number of drugs of herbal origin mentioned in Ayurveda texts, which were advised for treatment of Madhumeha [6]. Even today a huge number of population in the world used the medicinal plants for the treatment of Diabetes Mellitus [7]. As the incident and severity of Diabetes is increasing worldwide, it imposes an huge economic loss to people with diabetes and their families, and to health systems and national economy [8]. The importance of traditional plant medicines from the last decade goes on increasing with both medical and economic implications [9]. On the other hand the chemically synthetic hypoglycaemic agents used for the treatment of diabetes are not only expensive but also cause various complications and side effects to the health [10].

2. Materials and methods

Nadaun is a small town in Hamirpur district, located in central Himachal Pradesh, India, right near Beas River. The Town is situated between $76^{\circ}18'$ – $76^{\circ}49'$ East longitude and $31^{\circ}52'30''$ North Latitudes. The track is hilly covered by Shivalik range and the elevation varies from 450 to 11,000 meters. As per the census of India 2011, it has a population of 4430. The Climate is characterized by an intensely hot summer, a pleasant cold season. The summer season from March to about middle of June is followed by the south-west monsoon season from mid-June to the end of September. October and first half of November constitute the post-monsoon period. The cold season is from mid-November to February. The minimum and maximum day time temperature varies between 20° and 42° . People in this region can easily understand Hindi and can communicate in that language.

In order to document the record frequent field surveys were conducted many times (**Figure 1**). A questionnaire containing the details of the plants, parts used, medicinal uses and mode of preparation of remedies is structured and informal talks were employed to gain the information about the use of plants as Antidiabetic. Any statistical survey is not used in the given study.



Figure 1.
Field survey.

3. Result and discussion

Ethnobotany may be defined as the scientific study of the dynamic relationship between various plants and people. The present study highlighted the traditional herbal medicine used for the treatment of diabetes in the particular selected study area. During the survey, around 50 people, mostly old aged persons, were selected randomly for the study. Information of plants along with their common name, useful part, time of availability, mode of preparation and consuming is documented (**Table 1**). All the plants are photographed as a record (**Figure 2**). Most of the recorded plants are available from the wild growth, and some are cultivated by the local villagers. Mostly plant materials are preserved in dry powder form as these are available only in a particular season. Various methods of preparation of these herbal remedies were recorded during the study. The preparations were also consumed by the people in the form of juice, churna, chutney and chapattis. In the present study we found that people have a close relationship with the nature for their health care. As the importance of ethnobotanical studies goes on increasing day

S. No	Botanical name	Family	Local name	Part of plant	Antidiabetic use
1	<i>Acacia catechu</i>	Fabaceae	Khair	Heartwood	Katha (extract of heartwood)
2	<i>Aegle marmelos</i>	Rutaceae	Bil	Fruit, leaf	Fruits eaten as a powder, leaf consumed empty stomach early in morning
3	<i>Allium cepa</i>	Liliaceae	Pyaz	Bulb	As salad, and as chutney
4	<i>Allium sativum</i>	Liliaceae	Lehsun	Bulb	Bulbs are consumed empty stomach in early morning.
5	<i>Aloe vera</i>	Liliaceae	Kwar	Leaf	Juice is consumed
6	<i>Azadirachta indica</i>	Meliaceae	Neem	Leaf	Tendor leaves are used
7	<i>Berberis aristata</i>	Berberidaceae	Kashmal	Bark	Decoction of bark with water
8	<i>Carica papaya</i>	Caricaceae	Papita	Fruit	Ripe fruit is consumed
9	<i>Carissa spinarum</i>	Apocynaceae	Garnu	Fruit	Ripe fruit is consumed
10	<i>Colocasia esculenta</i>	Araceae	Arbi	Leaf	Cooked
11	<i>Curcuma longa</i>	Zingiberaceae	Haldi	Rhizomes	Dry rhizomes powder consumed with milk
12	<i>Gymnea sylvestre</i>	Apocynaceae	Gudmar	Leaf	Consumed as powder
13	<i>Lagenaria siceraria</i>	Cucurbitaceae	Lauki	Fruit	Juice of fruit is used with amla juice and also cooked as vegetable
14	<i>Momordica charantia</i>	cucurbitaceae	Karela	Fruit	Used as vegetable and juice
15	<i>Mentha arvensis</i>	Lamiaceae	Pudina	Leaf	As juice, and chutney
16	<i>Murraya koenigii</i>	Rutaceae	Gandhla	Leaf	Fresh leaves consumed empty stomach in morning
17	<i>Ocimum sanctum</i>	Lamiaceae	Tulsi	Leaf	Decoction of leaf with water
18	<i>Phyllanthus emblica</i>	Euphorbiaceae	Amla	Fruit	Ripe fruit consumed, and as dry fruit powder
19	<i>Pogostemon benghalensis</i>	Lamiaceae	Kali Basuti	Leave	Fresh leaves are used
20	<i>Prunus persica</i>	Rosaceae	Aadu	Fruit	Ripe fruits are consumed
21	<i>Psidium guajava</i>	Myrtaceae	Amrood	Fruit	Ripe fruit is consumed
22	<i>Syzium cumini</i>	Myrtaceae	Jamun	Fruit	Fresh fruits is consumed, seed used as powder

S. No	Botanical name	Family	Local name	Part of plant	Antidiabetic use
23	Terminalia balerica	Combretaceae	Bahera	Fruit	As powder
24	Terminalia chebula	Combretaceae	Harda	Fruit	As powder
25	Tinospora cardifolia	Menispermaceae	Giloe	Stem	Powder is consumed in empty stomach
26	Trigonella foeumgraceum	Fabaceae	Methi	Seed	Seeds are consumed as powder with water in empty stomach and overnight soaked with water
27	Triticum aestivum	Poaceae	Kanak	Plant	Plant juice is used, ans consumed as sprouted
28	Vinca rosea	Apocynaceae	Sadavahar	Leaf	Fresh leaves and leaves powder used as treatment
29	Vitex negundo	Lamiaceae	Vana	Leaf	Tendor leaves used
30	Zingiber officinalis	Zingiberaceae	Sonth, adrak	Rhizomes	As such, and as pickle
31	Ziziphus jujuba	Rhamnaceae	Ber	Fruit	Ripe fruit used

Table 1.
Antidiabetic plants recorded from Nadaun, Hamirpur District.



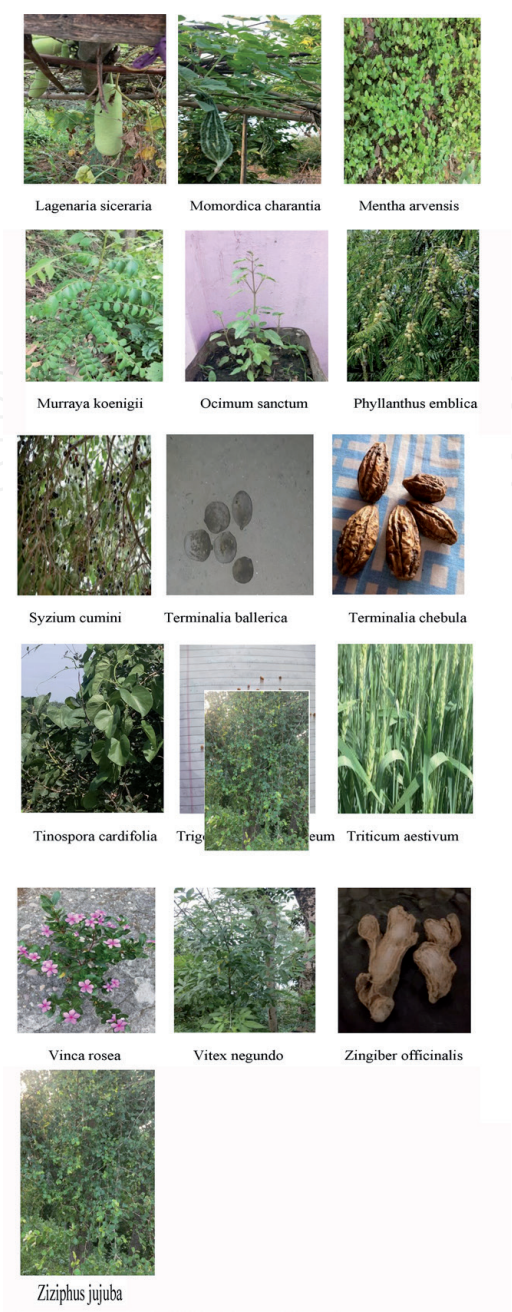


Figure 2.
Plants used traditionally for the treatment of diabetes.

by day, it is mandatory preserve the information’s about the knowledge of folk-lore medicinal plants which is use by local communities before it is permanently disappear.

IntechOpen

Author details

Monika Rana^{1*} and Meenakshi Rana²

1 School of Pharmacy, Maharaja Agrasen University, Baddi, Himachal Pradesh, India

2 GSS Sachdeva, Kharar, SAS Nagar, Punjab, India

*Address all correspondence to: sairana.rana43@gmail.com

IntechOpen

© 2021 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] Classification of diabetes mellitus, World Health Organization , Geneva, 2019.
- [2] Tan SY, Sim YJ, Wong SS, *etal.* Type 1 and 2 diabetes mellitus: A review on current treatment approach and gene therapy as potential intervention. 2019; 13(1):364-372.
- [3] Saeedi P, Petersohn I *etal.* Global and regional diabetes prevalence estimates for 2019 and projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th edition. Diabetes Research and Clinical Practice. 2019; 157: 107843.
- [4] Wild S, Sicree R *etal.* Global Prevalence of Diabetes. Diabetic Care. 2004; 27:1047-1053.
- [5] Surya S, Salam AD, Tomy DV *etal.* Diabetes mellitus and medicinal plants-a review. Asian Pacific Journal of Tropical Disease. 2014; 4(5):337-347.
- [6] Jaiswal KM, Shah C. A Review Of Diabetes Mellitus And Herbs In Ayurveda. Imperial Journal of Interdisciplinary Research. 2016; 2(3): 514-520.
- [7] E Martins. The growing use of herbal medicines: issues relating to adverse reactions and challenges in monitoring safety. 2014; 4:177.
- [8] Seuring T, Archangelidi O, Suhrcke M. The Economic Costs of Type 2 Diabetes: A Global Systematic Review. 2015; 33(8):811-831.
- [9] Rang HP, Dale MM. The Endocrine System Pharmacology. 2nd ed. Harlow, UK: Longman; 1991: 504-8
- [10] Mahady GB. Global harmonization of herbal health claims. Journal of Nutrition. 2001; 131:1120S-3S