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REVIEW ON MEDICINAL PLANTS USED IN DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus is one of most occurring systemic metabolic disorders in the world. The characteristics of this disorder includes increased blood sugar level(hyperglycemia) inefficient insulin level and improper glucagon level which cause lever to use glucose by the cell as energy source. There are two types of diabetes mellitus type -1 and type -2. Prevalence of type-1 diabetes is less as it occurs in children bellow age 15 but the major problem is type-2 diabetes. Large number of populations now days suffering from this disease. There are number of oral hypoglycemic agents and other synthetic drug therapies for the same. But to overcome the side effect due to such synthetic medicines researches on the natural medicines continues to happen. There is large number of medicinal plants worldwide in those most of having the antidiabetic properties. This article is aimed to collect the information of the different medicinal plants having antidiabetic activity.

Key words: Diabetes mellitus, Medicinal plants, hypoglycemic, extract, chemical constituent

INTRODUCTION

Diabetes is the metabolic disorder in which human body fails to produce enough insulin which is principal hormone in which starch, sugar and food is converted into energy by a metabolic process.[1] Diabetes mellitus is one of the most occurring disorders. Characteristics of the diabetes mellitus includes increased blood sugar level(hyperglycemia), inefficient insulin level and improper glucagon secretion.[3] Glucagon cause liver to release glucose from its cells to use as energy source. There are two types of diabetes mellitus type-1 and type-2. People with type -1 diabetes mellitus don't produce insulin and its occurrence is less than type-1 diabetes mellitus. The people with type-2 diabetes mellitus don't respond to insulin or don't produce enough insulin.[3] There are several hypoglycemic agents. Because present synthetic drugs have certain drawback there is need of herbal medicines and novel drug search is continues to overcome some problem that may produce during the use of synthetic medicines. There are about 45000 plants are found in indie which are having medicinal properties. Huge number of them are used to treat diabetes mellitus[2]. The main advantage of using plants in management of diabetes mellitus is that they don't produce any adverse effect on body. And also, it reduces the cost of medicines. This article is focuses on the different medicinal plants used in the diabetes problem that may produce during the use of synthetic medicines.

There are about 45000 plants are found in indie which are having medicinal properties. Huge number of them are used to treat diabetes mellitus [2]. The main advantage of using plants in management of diabetes mellitus is that they don't produce any adverse effect on body. And also, it reduces the cost of medicines. This article is focuses on the different medicinal plants used in the diabetes mellitus.

Medicinal plants with antidiabetic activity:

1) *Brassica juncea*:



Biological name:- *Brassica juncea*

Common name: - brown mustard

Family: - Cruciferae

Part used: - seeds, leaves

It is commonly used as spice in food. It contains constituent having beneficial effect on carbohydrate metabolism. Aqueous extract of seeds has hypoglycemic properties.[3] Isorhamnetin is major antidiabetic flavanol found *Brassica juncea*. [6]

2) *Eugenia jambolana*:



Biological name: - *E. jambolana*

Common name: - jamun, Indian blackberry

Family: - Myrtaceae

Part used: - seeds, leaves, fruits.

It is large sized tree that grows about 25 meters in height. It is mainly found in India, Thailand and also in places of Philippines.[3-4] Fruits are egg shaped and black. The seeds possess hypoglycemic activity. It is used in ayurveda from ancient times. Jamun contains important glycoside jambolin which prevent conversion of starch into sugar.[10]

3) *Annona squamosa*:



Biological name: - *Annona squamosa*

Common name: - custard apple, sugar apple, sweetsop.

Family: - Annonaceae

Part used: - root

It is small tree or shrub having edible fruits. It is extracted in the aqueous extract. Roots of this plant are used in the diabetes mellitus. The roots of plant reduce blood sugar level.[2]

4) *Catharanthus roseus*

Biological name: - *C. roseus*

Common name: - cape periwinkle, rose periwinkle, Madagascar periwinkle

Family: - Apocynaceae

Part used: - leaves, flowers



It is perineal flowering plant. The powder obtained from leaves of *C. roseus* is used in the diabetes. Methanolic leaf extract shows hypoglycemic effect.[7]

5) *Allium sativum*:



Biological name: - *A. sativum*

Common name: - Garlic

Family: - Amaryllidaceae

Part used: - clove of garlic

Garlic is grown in most of the parts in India all the year. The chemical constituent that is allicin in the garlic shows hypoglycemic action. The aqueous extract of garlic is used as oral hypoglycemic.[8]

6) *Azadirachta indica*



Biological name: - *Azadirachta indica*

Common name: - neem

Family: - Meliaceae

Part used: - leaves

The *A. indica* is fast growing tree neem is likely native to Indian subcontinent. The leaves of neem possess antidiabetic activity along with anti-bacterial activity.[9] The two main active constituents in the neem those are quercetin and rutin shows hypoglycemic effect.

7) *Ricinus communis*:



Biological name: - *Ricinus communis*

Common name: - castor oil plant, castor bean.

Family: - Euphorbiaceae

Parts used: - root, stem and leaves.

Ricinus communis is also known as erandah in local language. Cultivated in the India. Its ethanolic extract shows significant diminution of blood sugar level.[5]

CONCLUSION

In this review we discussed some medicinal plants having the antidiabetic property. In spite of presence of medicinal plant some synthetic medicines are used in management of diabetes mellitus but due to side effects of synthetic product now a days the use of medicinal plant is increased and it also reduces cost. Number of herbs have found to be having blood glucose lowering activities such plants are used in the management of diabetes mellitus. There is need to study the effect of medicinal plants in the management of such diseases like DM.

REFERENCES

1. Fatemeh Farzaei, Mohammad Reza Morovati, et al. A Mechanistic Review on Medicinal Plants Used for Diabetes Mellitus in Traditional Persian Medicine. *Journal Of Evidence Based Complementary and Alternative Medicine*, 2017;22(4) 944-955.
2. S. Elavarasi, K. Saravanan, C. Renuka. A systematic review on medicinal plants used to treat diabetes mellitus. *IJPCBS*, 2013;3(3),983-992.
3. G. Arumugam, P. Manjula, N. Paari. A review: anti-diabetic medicinal plants used for diabetes mellitus. *Journal of acute disease*. 2013;6189(13) 60126-2.
4. A. Saravana Kumar, S. Kavimani, K.N. Jayaveera. A review on medicinal plants with potential antidiabetic activity. *IJP*, 2011; 2(2),53-60.
5. M. Upendra Rao, M. Sreenivasulu, B. Chengaiah, et al. herbal medicines for diabetes mellitus: A Review. *International journal of pharma tech research*. 2010; 2(3) 1883-1892.
6. Vikas Kumar, Ajit Kumar Thakur, Narottam Dev Barothia, et al. Therapeutic potential of brassica juncea: An overview. *Cell Med* 2011;1(1), 2.1-2,16
7. Jai Narayan Mishra, Navneet Kumar Verma. A brief study on
8. *Catharanthus roseus*: A Review. *IJRPPS*, 2017;2(2) 20-23.
9. Saheed Sabiu, Moses Madende, Abdulwakeel Ayokunnun Ajao, et al. Chapter 9 – the genus allium (Amaryllidaceae: Alloideae): Features, phytoconstituents, and mechanisms of antidiabetic potential of allium cepa and allium sativaum. *Bioactive food as dietary interventions for diabetes (second edition)* 2019;137-154
10. K. Satyanarayana, K. Sravanthi, R. Ponnulakshmi, et al. Molecular approach to identify antidiabetic potential of *azadirachta indica*. *Journal of ayurveda and integrative medicines* 2015; 6(3), 165-174.
11. Gazi Jahangeer Rather, Hamidudin, MD Naquibuddin, et al. Antidiabetic potential and related activity of jamun (*syzygium cumini* Linn.) and its utilization in unani medicine: An overview. *IJHM*, 2019;7(5), 07-11.