



# Different herbal medicinal plants used for the management of diabetes mellitus.

Prepared by: Shingade Jayshri Ranba\*1, Hambarde Swati Santosh\*2, Miss Geeta Masal\*3,

Mrs Dr. Kolhe S.D\*4

**DESIGNATION:** \*1 Student Of batchelor of pharmacy, Anand Charitable Sanstha's college of pharmaceutical science and research, Ashti, India.

\*2 Student Of batchelor of pharmacy, Anand Charitable Sanstha's college of pharmaceutical science and research, Ashti, India.

\*3 Assistant professor of Anand Charitable Sanstha's college of pharmaceutical science and research Ashti, India

\*4 Principal of Anand Charitable Sanstha's college of pharmaceutical science and research, Ashti, India.

## Abstract :

Plant have been always source of drugs for humans. For the management of diabetes many drugs are commonly used. Diabetes mellitus (DM) is a serious chronic metabolic disorder. Diabetes mellitus is caused by increase the level of blood sugar in the body then disruptions of insulin metabolism and homeostasis. In this review we focus on the indian herbal medicinal plants used in the treatment of diabetes. There are 800 plants which have been show Anti diabetic activity. DM can induce Life threatening health problems such as renal failure, cvs disease, blindness and stroke. So that for reduction of harmful effects of diabetic and it's secondary complications, herbal drugs are used due to less side effects & low cost. The aim of this review is to providing information about the antidiabetic potential & bioactive compounds present in Trigonella foenumgracum, Pterocarpus marsupium, Ficus religiosa, Eugenia jambolana, Mangifera Indica.

**Key Words:** Herbal plants, Diabetes mellitus, uses, antidiabetic plants, phytochemicals.

## Introduction :

Diabetes mellitus (DM) is a chronic disease caused by inherited and/or acquired deficiency in the production of insulin by the pancreas. Such a deficiency results in increased concentrations of glucose in the blood, which in turn damages many of the body systems, in particular the nerves and blood vessels. DM is a metabolic disorder and abnormally high blood glucose levels (hyperglycemia)(1).

It is estimated that 25% of World population is affected by this disease (2). Which are mainly characterized by hyperglycemia and arises due to defects in insulin secretion, insulin action, or both. It is mainly categorised into two types

### 1)Type 1 diabetes 2) Type 2 diabetes 3)Type 3 diabetes

1) Type I- Diabetes is known as **insulin dependent diabetes** and by deficiency of production of insulin, requires daily administration of insulin ,in low rates of glucose uptake into muscles and adipose tissue (3) 2) Type II- Diabetes commonly known as **non- insulin dependent Diabetes** .the commonly risk factor are involved in type of II diabetes like insufficient physical activity ,genetic factor, advancing age ,obesity ,hypertension, poor diet .(4,5) Diabetes is a metabolic disorder in human body not produce properly us insulin hormone that is required to convert sugar , food into energy.

3) Type III-Diabetes commonly known as Gestational Diabetes in which blood glucose level increases in the pregnancy. The natural herbal plant used in treatment of diabetes mellitus focus on lowering blood sugar level and reduce the damaging effect of the diabetes.(6).

- **Some of the important plants showing Anti diabetic potentials as :-**

#### 1) *Trigonella foenum graecum* :-

*Trigonella foenum graecum* is the scientific name of Fenugreek (methi) belongs to the family fabaceae. Seed and leaves are used parts of the plant. Fenugreek cultivated throughout India and some other parts of the world as semiarid crop (6) the major chemical constituent present in fenugreek include Alkaloids:- Trigonelline, gentianine Flavonoids :- Apigenin, quercetin carbohydrates:- mainly mucilage.Powder of fenugreek reduce darkandkhvn sense in patient of type II diabetes (7,8)



## 2) *Allium sativum*:-

*Allium sativum* is the scientific name for garlic belongs to the family Amaryllidaceae. Bulbs are used part of the plant. The major chemical constituent present in garlic include 1) Allicin – is responsible for its pungent odour. 2) sulfur compounds including diallyl trisulphide is responsible for antioxidant, Anti diabetic properties.(9,10)It show garlic have Anti hyperglycemic and anti hyperlipidemic effect. A study reported by Eidi A *et al* states that for the future studies on DM the plant should be consider at the doses 0.1,0.25, & 0.5 g/kg streptozotocin-induced diabetic rats.(11) garlic reduce the lipid profile and glucose parameters such as glucose levels and hemoglobin A1c ( HbA1c) in diabetic patients. (12) garlic component act as hydrogen sulphur donor that control type -II diabetes.(13)



### 3) *Eugenia Jambolana* :-

*Eugenia Jambolana* is the scientific name for jamun belongs to the family Myrtaceae . Seeds are used part of the plant. The major phytochemical are present in jamun include carbohydrates, protein, lipids, terpenes, flavonoids, phenolic acid . *E. Jambolana* to have hypoglycemic effect both in experimental model and clinical studies. (14) It shows jamun pulp inhibit insulinase activity in the liver and kidney. (15) *Jambolana* lower blood sugar level. The seed contain alkaloid Jambosine & glycoside jamboline, which slows down the diastatic conversion of starch into sugar. (16)



#### 4) *Mangifera indica* :-

*Mangifera indica* is the scientific name for mango belongs to the family Anacardiaceae . Leaves are used part of the plant. The major phytochemical are present in mango include mangiferin, xanthone glycosides, polyphenolics, triterpenoids, & flavonoids dear active constituents present in the plant are somangiferin, tannins (17) Aqueous extract of mangifera Indica have showed anti hyperglycemic property (18,19) The Aq. Extract of the leaves of the plant show the hypoglycemic activity in glucose induce



hyperglycemic mice. (20)



### 5) *Ricinus communis*:-

*Ricinus communis* is the scientific name for castor oil belongs to the family Euphorbiaceae. Root are used part of the plant. The major chemical are present in castor oil include- steroids, saponins, glycosides, alkaloids, flavonoids, seeds & foods contain 45% fixed oils ricinoleic acid, dihydroxyteric acid, isoricinoleic, stearic (21) 50% of ethanolic extract of the root of the plant shows hypoglycemic activity. (22) Poonam Shokeen *et al* reported the ethanolic extract of root of the plant showed blood glucose lowering activity. (23) castor oil used in classical Egyptian and Greek medicine their use has been described in the *Susruta* and *Ayurveda* early as



sixth century. B.C (24)

### Conclusion :-

Diabetes mellitus is a metabolic disorder affecting more than 300 million people worldwide. This review paper highlights the medicinal properties of *Trigonella graecum*, *Allium sativum*, *Eugenia Jambolana*, *Mangifera indica*, *Ricinus communis* which possess Anti diabetic activity. In this review are discussed about medicinal plant for the treatment of diabetes mellitus. In India many medicinal plants are used traditionally in many forms in the treatment of diabetes. This article is prepared for providing proper information regarding the medicinal plants Having Anti diabetic activity. Herbs are widely used in the treatment of DM because they are more safe and more effective.

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