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Editorial Article

MEDICINAL PLANTS AS A POTENTIAL SOURCE FOR TREATMENT OF DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus is a common and serious metabolic disorder throughout the world. Traditional plant treatments have been used throughout the world for the therapy of diabetes mellitus. History showed that folk medicinal plants uses have been used to treat diabetes; this is because such herbal plants have hypoglycemic properties and other beneficial properties. The article shows a listing of medicinal plants used in phytotherapy of diabetes and those experimentally studied as hypoglycemic. The effects of these plants may delay the development of diabetic complications.

Keywords: Medicinal plants, diabetes mellitus, hypoglycemic

The practice of traditional medicine using medicinal plants is as old as the origin of man. This type of health care was described as Herbalism or Botanical medicine [1] and since ancient times, plants have been an important source of medicine. Medical plants play an important role in the management of diabetes mellitus. Some of these herbal plants and their active chemical constituents which have play a very important role in the management of diabetes mellitus. Diabetes mellitus is one of the common metabolic disorders. Diabetes mellitus is a systemic metabolic disease characterized by hyperglycemia and hyperlipedemia, it leads to decrease in both insulin secretion and insulin action [2]. It is caused by the abnormality of carbohydrate metabolism which is linked to low blood insulin level or insensitivity of target organs to insulin [3] leads to inherited and/or acquired deficiency in the production of insulin by the pancreas or by the ineffectiveness of the insulin produced. It results either from inadequate secretion of hormone insulin, an inadequate response of target cells to insulin or a combination of these factors. The disease is associated with reduced quality of life and increased risk factors for mortality and morbidity. There is a growing interest in herbal remedies due to the side effects associated with the oral hypoglycemic agents for the treatment of diabetes mellitus. So the traditional herbal medicines are mainly used which are obtained from plants, it plays important role in the management of diabetes mellitus [4]. In recent years, herbal medicines have started to gain importance as a source of hypoglycemic agents. The ethnobotanical information reports about more than 1000 plants that may possess antidiabetic potential however, searching for new antidiabetic drugs from natural plants is still attractive because they contain substances which demonstrate alternative and safe effects on diabetes mellitus.

SOME VERY IMPORTANT PLANTS WITH ANTI-DIABETIC POTENTIAL:

***Allium sativum* (Alliaceae):** It is a perennial herb cultivated throughout all over the world and is commonly used as a food ingredient. Oral administration of 0.25 gm/kg of ethanol, petroleum ether, ethyl ether extract of *Allium sativum* causes 18.9, 17.9, 26.2% reduction in blood sugar in alloxan-diabetic rabbits (150 mg/kg) [5].

***Aloe vera* (Asphodelaceae):** It grows in arid climates and is widely distributed in Africa, India and other arid areas. *Aloe vera* gel at 200 mg/kg had significant antidiabetic and cardioprotective activity and reduces the increased TBARS and maintains the Superoxide dismutase and Catalase activity up to the normal level and increases reduced glutathione by four times in diabetic rats [6].

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***Artemisia herba alba* (Asteraceae):** It is a perenniall shrub that grows commonly on the steppes of Northern Africa, Arabian Peninsula, Western Asia and Southwestern Europe. Oral administration of 0.39 g/kg body weight of the aqueous extract of the leaves or barks produces a significant reduction in blood glucose level, while the aqueous extract of roots and methanolic extract of the aerial parts of the plant [7]

***Bauhinia candicans* (Leguminosae):** *Bauhinia candicans* is a medicinal plant indigenous to sub-tropical regions of Argentina and southern Brazil. The effect of different fractions of methanolic extract of *Bauhinia candicans* leaves (8 mg/kg) showed hypoglycemic activity along with a reduced urinary glucose excretion. Among the fractions, the butanolic fraction exhibits highest activity. Moreover, the plant reduces plasma glucose level in normal, as well as, glucose loaded rabbits. These results suggest that *B. candicans* increases the peripheral metabolism of glucose [8].

***Brassica nigra* L (Brassicaceae):** It is an annual weedy plant cultivated for its seeds and is native to the southern Mediterranean region of Europe. Administration of 200mg/kg body weight of aqueous extract to diabetic animals once daily for one month brings down fasting serum glucose (FSG) levels while in the untreated group FSG remains at a higher value [9].

***Cassia auriculata* (Fabaceae):** *Cassia auriculata* occurs in the dry regions of India and Sri Lanka. Oral administration of a dose 400 mg/kg once a day for 15 days shows significant reduction in fasting blood glucose, also enhances the activity of hepatic hexokinase and phosphofructokinase and suppresses glucose-6-phosphatase and fructose-l,6-bisphosphatas [10].

***Dioscorea dumetorum* Pax. (Dioscoreaceae):** It is used in treatment of diabetes in traditional medicine, possesses hypoglycemic effect. An alkaloid present in an extract, dioscoretine, has been reported to possess hypoglycemic effect [11]. It has been reported that aqueous extract of *D. dumetorum* tuber control hyperlipidemia, hypercholesterolemia and hyperketonemia. The herb mainly act as an active hypoglycemic agent and works on the complications of diabetes [12].

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