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A role of ayurveda in treatment of diabetes: A review

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Abstract
Diabetes is the chronic disorder in the metabolism of protein, fats and carbohydrates. IT is described as an increase in the blood glucose after any type of meal. Diabetes results from either insulin deficiency or malfunction. The 25%of the world population is affected by the diabetes. Aim of the present study is evaluated various medicinal plants used for antidiabetic activity. medicinal plants are used in traditional medicine to treat diabetes. The greatest advantage of medicinal plants is that these are readily available and have very low side effects. Most of the plants contains carotenoids, flavonoids, terpenoid, alkaloid, glycosides and can of fen have antidiabetic effect. Traditional medicine (herbal)is used for the treatment of diabetes in developing countries where the cost of conventional medicine is a burden to the population. many indigenous Indian medicinal plants have been found to successfully manage diabetes.

Keywords: ayurveda, antidiabetic, triphala, bhasma

Introduction

In late 1970, both WHO (1) & national diabetes data group produced new diagnostic criteria & a new classification system for diabetes mellitus.

The term diabetes mellitus described a metabolic disorder of multiple aeitology characterised by chronic hyperglycemia with disturbance of carbohydrates, fat & protein metabolism resulting from defect in insulin secretion, insulin action or both.

There are many ayurvedic formulations herbs, minerals found for treatment of diabetes (madhumeha) herbal medicine are gaining popularity both in developing & developed countries because of their natural origin & less side effects.

According to study China, India &USA are among to three countries with high number of diabetic populations. the number climbed from 11.9 million in1980 to 64.5 million in India.

Diabetes is chronic disorder in the metabolism of protein, fat & carbohydrates. Diabetes requires early diagnosis, treatment, lifestyle changes. nowadays different treatment such as insulin therapy, pharmacotherapy &diet therapy are available to control disease.

The effect of diabetes mellitus includes long term damage, dysfunction & failure to various organs. Diabetes mellitus may present with characteristics symptoms such as thirst, polyuria, blurring of vision & weight loss.

Diabetes mellitus is characterized by constant high level of blood glucose (sugar) Human body has to maintain blood glucose level at a very narrow range which is done with insulin & glucagon. The function of glucagon is causing the Liver to release glucose from its cells into the blood for the production of energy.

Herbal formulations have a long history of use for the prevention & treatment of disease. the use of medicinal plant with therapeutic purpose represents a secular tradition in different cultures. these traditional for mutation are used by various local tribes for treatment of many disease.

Several pathogenic processes are involved in development of diabetes. these include processes which destroy the beta cells of pancreas with consequent insulin deficiency & other result in resistance to insulin action.

Method

Chaumukh rasa was prepared as per ayurvedic formulary. the dose of chaturmukha was taken as 45 mg kg, i.p

The vast majority of diabetic patients are classified into one of two broad categories; type 1 diabetes mellitus which is caused by an absolute or near absolute deficiency of insulin or type 2 diabetes mellitus which is characterized by the presence of insulin resistance with an inadequate compensatory in.

Traditional medicine derived from medicinal plants are used by about 70 percent of world population.

Fig 1: Ayurvedic Plants Used for *Madhumeha* (Diabetes Mellitus).

Table 1

sanskrit /local name	Latin name	Family	Part used
Babbula	*Acacia arabica*	Fabaceace	Leaves
Lasuna	*Allium sativum*	Liliaceae	Bulk
Nimba	*Azadirachta indica*	Meliaceae	Stem
Saptaparni	*Alstonia scholaris*	Apocynaceae	Stem bark
Sitaphala	*Annona squamosa*	Annonaceae	Leaves

Antidiabetic effects of folklore medicinal plant

1. **Brassica Juncea**
   It is commonly spice is various foot item in Tamil Nādu B. juncea is a traditional medicinal plant which belongs to family Cruciferae. B jucea aqueous seed exract has a potent hypogenic activity which was investigated in STZ induced diabetes male albino rat.

2. **Eugenia jambolana**
   (E. jambolana) popularly known as jamun or Indian blackberry has been indicated in Ayurveda, of Indian medicine, for the use of diabetes mellitus. accordingly anti-diabetic effects in traditional medicine, E jambolana has been reported to have hypoglycemic effect both in experimental models and clinical studies.

3. **Coccina grandis**
   Hypoglycemic activity was evaluated in alcoholic extracts of Coccina grandis leaves.
   Alcoholic extracts 600mg/kg bw was orally injected to the mice. oral administration of alcoholic extracts leaves shows significant hypoglycemic effect on blood glucose levels in normal fasted rats.

4. **Berberis vulgaris**
   Hypoglycemic effect of Berberis vulgaris in streptozotocin-induced diabetic rats, B. vulgarisis is traditional medicinal plant belongs to family Burseraceae. the level of serum cholesterol and Serum triglycerides were significantly increased.

5. **Catharanthus roseus**
   Hypoglycemic effect of the methanolic leaf extract of Catharanthus roseus is alloxan induced diabetic rats. were blood glucose level decreased when compared with controls rat.

6. **Chaenomeles sinensis**
   Ethyl acetate fraction of Chaenomelus sinensis (Thouin) koehne fruit is very good anti-diabetic effect. Chaenomelus sinensis belongs to family Rosaceae.

Table 2: Methods for induction of diabetes

Ayurvedic Names	Scientific name	Quantity
Rasa (prada) suddha	Mercury	1part
Gandhaka suddha	Sulphur	1part
Loha bhasma	Iron	1part
Abhra bhasma	Mica	1part
Kanya(kumara)swarasa	Aloe barbadensis mill.	1/4part for mardana
Eranda patra	Ricinus communis linn.	Q.S for avestana part used.

Antidiabetic drugs in ayurveda

1. Triphala

Triphala is made by three medicinal herbal plant which are the Terminalia chebula, Terminalia belleriva & Phyllantus emblica.

Triphala churn powder is the study of two parts diffrentiate. There are two groups made up of first is Honey means- madhu & second one is Lukewarm water mean- ushnodak that mixture vehicle is used as Anupana with the triphala powder is disease diabetis mellitus. For the research study two groups divided in 60 patient as refer firstly group 30 patient & second group 30 patient & comparison between them.

First group in 30 patient to take the treated with triphala powder with honey & second group in next 30 patient to take the trrated with triphala powder with lukewarm water.

Triphala powder dose will be decided as 5 gram in twice a day & duration therapy of time upto 90 days. Thus, drug was repeated action in both group in all patient.

If you any drug is not produce side effect & any other toxicity. Therefore, triphala powder along with the honey is mostly benefit to Diabetis mellitus.

Example

Terminalia bellirica

Terminalia bellirica is various type of another name as balneda, bahera, beleric or bustard myrobalanus bellirica gaertan. In ayurvedic medicin beleric is traditional Indian name is Bibhitaki. The fruit are widely used in rasayana herbal treat or fiagnosis to triphala. In accidental ayurvedic book in charaka samhita it has described inform the fruid having good quality to alleviate disease & beshow longevity & power and strength.

This friud is used in treatment of asthma, bronchitis, hepatitis, diarrhea, pills, eye disease, etc.

2. Bhasma

In Ayurveda generally any ash product is called as Bhasma. Various type of bhasma is Swarna bhasma, Makshika bhasma, Adharak bhasma, Tamra bhasma & Luadha bhasma. Nanometer dimension present in bhasma & its free from toxic effect.

Example

Swarna bhasma

Swarna bhasma is the mostly Indian & Chinese traditional medicinal system. It includes the herbal extract & metal of other substances. The process of swarna bhasma is used the heating of dry leaves of then finely powered & then formation of paste is dried under the sun & final preparation is resulting the grinting & drying in under sunlight process repeated as 7 to 14 time to with latex.

Self - limiting digestion related of oral gold therapy but symptom is represent as a diarrhea.

3. Nimbalapatra

Nimbalapatra is medication powered of ayurvedic herbal powder or churna is used in treat & diagnosis of disorder in the Ayurvedic system ie. treat the skin disease, gout. It is mainly ingredient present in NEEM.

Its handaled in diabetic wound as a chronic non- healing wounds & also used spleen disorder & relieve inflammation.

Example

Azadirachta indica

(Nimbalapatra svarasa)

If you tried to study in research work on the neem leaves juice effect on diabetes mellitus. To formulate a nimbalapatra svarasa ghanavati dose is 500 mg required in

trice a day if a 60 patient is carried out & BSL more than 280 patient. If we are drawback is found like hypertension, heart disease, fever. In kapha prakruti is mostly beneficial & madhumeha is not beneficial of the drug symptoms of patient are seen by pipasa, madhura.

4. Acacia arabica (Babhul)

Acacia arabica is origin from Africa, the middle East, and the Indian subcontinent. The plant educes acts as an antidiabetic agent, hypoglycemic, hypolipidemic and antioxidant properties. Antidiabetic agents they stimulate secretion of insulin.

They presence pancreatic beta cells. It produces hypoglycemia in control rats but not in colonized animals. The powdered of Acacia arabica. When administered (2,3,4g/kg body weight) to normal rabbits produced hypoglycemic effect by starting release of insulin from pancreatic beta cells.

Fig 1

5. Allium sativum (garlic)

This is a continuous herb cultivated throughout India. Anti-diabetic effects of ethyl alcohol extracts derived from Allium sativum were measured normal and streptozotocin produced diabetic rats. Oral administration of the ethyl alcohol extracts of plant they reduce level of serum glucose, total cholesterol triglycerides, urea, uric acid, cretinine and AST (aspirate aminotransferase) This extract increased the serum insulin in diabetic rats. The ripe bulb of Allium sativum decrease the blood glucose in STZ - produce diabetic rats by stimulating insulin secretion from pancreas cells. Daily garlic extract oral administration 100mg/kg they importance from reduce plasma glucose level by induce plasma insulin levels.

Fig 2

6. Eugenia jambolana (Jamun)

Eugenia jambolana (E. jambolana) commonly called as jamun or Indian blackberry has been expressed in Ayurveda, an ancient system of Indian medicine, for used in Diabetes mellitus. The oral administration extract found to increase serum insulin level in diabetic rats. Insulin secretion was results to be stimulated on growth of plant extracts with isolated islets of Langerhans from normal and diabetic animal. These extracts also prohibited insulinase activity from kidney and liver.

Fig 3

7. Mangifera indica (Mango)

Mangifera indica leave has been Antidiabetic properties were assessed in glucose produced normoglycemic, hyperglycemic and streptozotocin produced diabetic rats. The water extracts of this plant leaf reduced the glucose level in normoglycemic and glucose produce hyperglycemic. The plant leaf oral administration (1 g /kg) not change blood glucose level in normoglycemic or in streptozotocin produced diabetic rats. The antidiabetic activity of the extract decreased intestinal absorption of glucose.

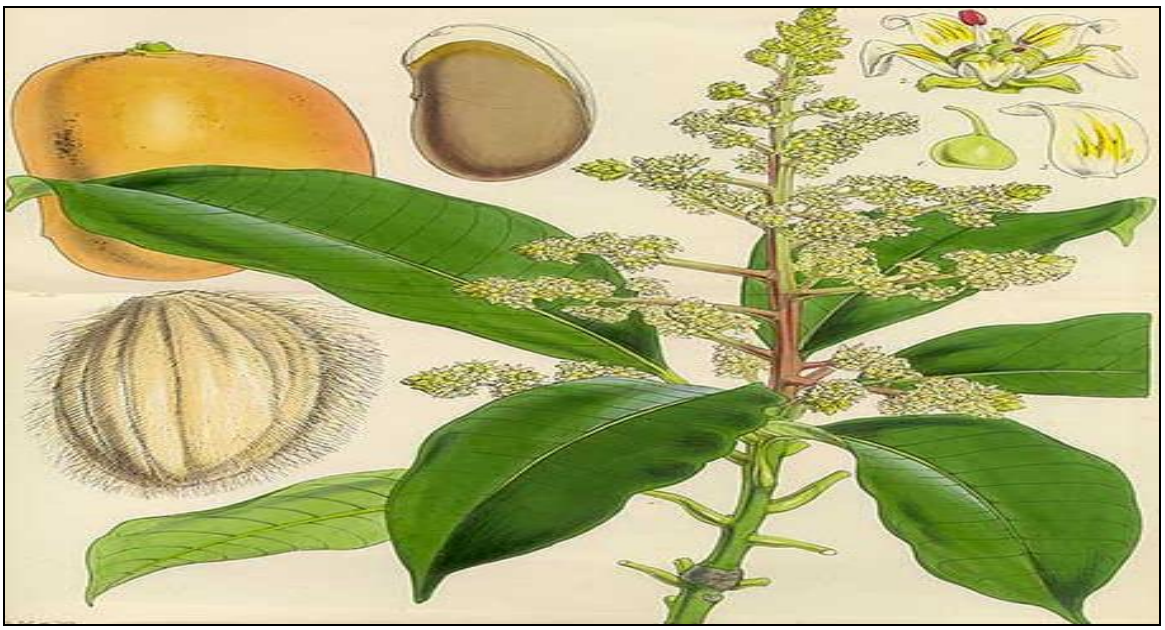

Fig 4

Recent advance techniques for Diabetics

A disease in which the body does not control the amount of glucose in the blood and the kidneys make a large amount of urine.

dibetes mellitus is common and very prevelent disease affecting the citizen of both developed and developing countries. It is estimated that 25% of the world population is affected by these population. Diabetes mellitus is the abnormality of carbohydrate metabolism which is linked to low blood insulin level.

Causes and types

Insulin is a hormone secreted by beta cells, which are located within clusters of cells in the pancreas called the islets of Langerhans.

Insulin's role in the body is to trigger cells to take up glucose so that the cells can use this energy-yielding sugar.

Type

Two Type of diabetes mellitus-

Type 1 diabetes- is an insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes, usually arises in childhood.

Type 2 diabetes, is called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes,

usually occurs after age 40 and becomes more common with increasing age.

Type 1 diabetes mellitus

Type 1 diabetes accounts for about 5 to 10 percent of cases of diabetes. Most cases of type 1 diabetes develop in children or adolescents, but about 20 percent of new patients are adults.

The type 1 diabetes varies widely in different countries, from less than 1 case per 100,000 people per year in China

and parts of South America to more than 20 cases per 100,000 people per year in places such as Canada, Finland, Norway, Sweden, and the United Kingdom.

Most patients present with symptoms of hyperglycemia, but some patients present with diabetic ketoacidosis, a clear indication that insulin secretion has significantly deteriorated

Type 2 diabetes mellitus

Type 2 diabetes is far more common than type 1 diabetes.

Most patients with type 2 diabetes are adults, often older adults, but it can also occur in children and adolescents.

Many patients with type 2 diabetes are asymptomatic, and they are often diagnosed with type 2 diabetes when routine measurements reveal high blood glucose concentrations.

In some patients the presence of one or more symptoms associated with the long-term complications of diabetes leads to a diagnosis of type 2 diabetes.

In patients with type 2 diabetes, high blood glucose concentrations can lead to very severe and prolonged hyperglycemia and to marked polyuria, with the loss of a large volume of fluid and a very high serum osmolality. These factors place patients with type 2 diabetes at a high risk of developing central nervous system dysfunction and vascular collapse (hyperglycemia coma). Ketoacidosis is usually not a problem in patients with type 2 diabetes because they secrete enough insulin to restrain lipolysis.

Patients with hyperglycemic coma should be treated aggressively with intravenous fluids and insulin.

Recent advances

Understanding the biology of body-weight regulation in children....

A novel molecule to improve continuous glucose monitoring....

Addressing the legacy effect of diabetes....

A new way to prevent immune cells from attacking insulin-producing beta-cells....

A new target to improve insulin sensitivity.

Conclusion

In this review We discussed about folklore medicinal plant for treatment of diabetes mellitus. Folklore medicinal plant mostly used in rural areas because availability of largest amount of medicinal plant those areas. In the present review an attempt has been made to investigate the anti-diabetic medicinal plant and May be useful to the health professionals, scientist and scholars working in the field of pharmacology and therapeutics to develop anti-diabetic drugs.

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