



**Review Article**

**A BRIEF REVIEW ON CURRENT SCENARIO OF ANTI-DIABETIC AYURVEDIC REMEDIES**

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**ABSTRACT**

Ayurveda is not only an ancient medical science but it is a science which gives understanding about life. The scope of Ayurveda is to maintain the health of a healthy person and to cure those suffering from diseases.

Since last few decades due to drastic change in lifestyle, dietary habits and working pattern overall human population is facing increased burden of several diseases. Late night sleeping habits, increased fast food consumption, overeating and increased sugar intake are major changes observed in current era.

Lifestyle disorder is a broad term given to all diseases which arises because of unhealthy lifestyle. Diabetes is the most common lifestyle disease affecting population worldwide at large. Now a day various researches carried out at different institutions found that variety of Ayurvedic drugs and therapies are successful in controlling diabetes, improving lifestyle of patient and thereby preventing further complications.

The present review article is aimed at compiling data on promising Ayurvedic remedies that have been evaluated for their efficacy as an anti-diabetic remedy at various national and international institutions. This review article gives an idea about the efficiency of various anti-diabetic Ayurvedic treatment modalities in present era public.

**KEYWORDS:** *Madhumeha*, Herbal drugs, Lifestyle disorder.

**INTRODUCTION**

Diabetes mellitus is described as a metabolic disorder having multiple aetiologies. It is characterized by insulin resistance, relative insulin deficiency and hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism. The shift from the primarily diurnal standard of living of our ancestors to unhealthy diet habits, physical inactivity and other aspects of lifestyle in developing countries are few major contributors in the growing incidence of Type 2 diabetes. It accounts for about 90% of all cases at a younger age. India is one among the leading country with highest number of diabetic population with a current figure of 40.9 million, followed by China, USA, Russia, Germany, Japan, Pakistan, Brazil, Mexico and Egypt. The aetiology of diabetes in India is multifactorial. It comprises genetic factors along with environmental influences such as obesity associated with rising living standards, steady urban migration, and lifestyle changes.

It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India.

Diabetes has become a serious health problem with continuously increasing rates of prevalence and mortality.<sup>[1]</sup>

**AIMS AND OBJECTIVES**

The percentage of diabetic patients in society is rising sharply in spite of number of newly immersed anti-diabetic drugs in modern medicine. Human race at present is looking towards Ayurveda in search of an ideal and safe treatment. This review emphasizes on anti-diabetic actions of herbal medicines. The primary aim of this article is to discuss therapeutic values of some herbal preparations observed in experimental studies and recent approaches to validate their anti-diabetic efficacies.

**MATERIAL AND METHODS**

This article is based on review of current researches regarding anti-diabetic value of Ayurvedic drugs. Materials related to diabetes, anti-diabetic Ayurvedic drugs and other relevant topics have been collected. We also have referred to the modern medicine and explored various websites to collect

information on the relevant topic. Recent researches available in various popular journals have also been reviewed while writing this article.

### Central Idea

There is lot of concern and debate over the matter whether one should test the efficacy of age-old Ayurvedic medicines on modern parameters or not? Many *Vaidyas* feel that, Ayurveda is an ancient healing art inherited from the sages and has survived for thousands of years and hence there is no need for its clinical validation. Whereas, if we want our system to reach on international platform, then the development of this ancient yet contemporary science with the firmness of clinical research is very essential. If we can demonstrate the value of our science and art of healing with proper evidence based documentation then Ayurveda will become globally acceptable as a contemporary science of medicine.

### Literature Review

#### Diabetes

Diabetes is a condition characterized by an inability to produce or use insulin correctly. Most of the food that we eat is broken down by the digestive juices into a simple sugar called glucose. After digestion, the glucose passes into bloodstream where it is available for body cells to use for growth and energy required for various activities. Insulin is must for the glucose to get into the cells. It is a hormone produced by the pancreas. When we eat any sort of food material, the pancreas is supposed to produce the right amount of insulin to move the glucose from blood into our cells. If pancreas doesn't secrete adequate insulin or the insulin doesn't work right, the sugar cannot get into the cells. It stays in the blood which makes high levels of glucose in the blood (hyperglycaemia). As a result, glucose builds up in the blood, overflows into the urine, and passes out of the body (glycosuria). Hence our body loses its main source of energy even though the blood contains large quantities of glucose. There are two types of Diabetes,

Type I: Diabetes Mellitus- Juvenile onset diabetes/insulin dependent diabetes mellitus (IDDM)

Type II: Diabetes Mellitus- Adult onset diabetes/non-insulin dependent diabetes mellitus (NIDDM).<sup>[2]</sup>

#### Diabetes in Ayurveda

According to Ayurveda there are 20 types of *Prameha* (Polyuria). *Madhumeha* is the Ayurvedic diagnosis that approximates diabetes mellitus label. Ayurveda describes about the general etiological factors of *Prameha*. There are two type of etiological factors mentioned in Ayurveda; *Sahaja* (congenital) and *Apathyanimittaja* (acquired).<sup>[3]</sup>

Ayurveda classifies diabetic patients into obese and slim types before initiating therapy as the treatment methods are different in both of these cases. Along with medicinal treatment diet plays an important role in the outcome of treatment. In obese individuals, the diet is advised to bring about depletion in body tissues and is facilitated by prescribing food items which are difficult to digest and having less nutritive value. In the slim patients food items which are easy to digest and having nourishing property are used.<sup>[4]</sup>

Overall holistic approach of Ayurveda concentrates on treating the patient as a whole. It means intervention targeted toward complete physical, psychological, and spiritual well-being. This uniqueness makes this science of Ayurveda a wonderful option in lifestyle disorders.<sup>[5]</sup>

#### Nidana

*Nidana* means the factors responsible for producing any disease i.e. etiological factors.<sup>[6]</sup> For proper diagnosis and treatment one should know the exact cause of manifestation. The etiological factors of diabetes can be divided into following two groups:

**1. Dietary factors:** *Payamsi* (Use of milk and milk products), *Dadheeni* (excessive use of curd), *Gramyoudakaanupamamsa* (flesh of animals of domestic and aquatic places), *Navannapanam* (new grains), *Guda-vaikruti* (jaggery and its derivatives), *Ikshurasa* (Sugar cane juice), *Madhurahara* (sweets), *Pishtaahara* (carbohydrate rich food), *Adyashana* (repeated food intake), *Adhikashana* (excessive food intake), *Ahitashana* (unwholesome diet), *Samashana* (Improper diet). *Havisha*, a special rich food made from milk, sugar and rice.<sup>[7]</sup>

**2. Life style factors:** *Aasyasukham* (Habit to sit on soft cushions for long periods) and *Swapnasukham/Atinidra* (prolonged sleeping) are suggested as key predisposing factors for diabetes. Other causes include *Sahaja* (inherited factor), *Bhaya*(fear), *Deerga Roga* (long standing illness), *Aalasya* (laziness), *Kaphakrut cha sarvam* (all foods and lifestyle activities which increases *Kapha Dosh*).<sup>[8]</sup>

**3. Beejadoshaja:** Hereditary predisposition for the *Prameha*.<sup>[9]</sup>

#### Current researches in Ayurveda and their anti-diabetic efficacy

##### 1. Rajanyamalakadi Yoga

A study was undertaken by P.Faizal and colleagues at district Ayurveda hospital, Ernakulam for evaluating the hypoglycemic and hypolipidemic effects of an Ayurvedic medicine "*Rajanyamalakadi*" containing *Curcuma longa*, *Emblica officinalis* and *Salacia oblonga* in type II diabetic patients over a period of 3 months. They found that there is a

significant reduction in the final values when compared with the initial values of FBS, Gly. Hb. Whereas there is a significant increase found in the levels of HDL cholesterol, insulin and glutathione reductase activity in all treated groups ( $p < 0.05$ ). As all these ingredients of the drug viz., *Salacia oblonga*, *Curcuma longa* and *Embllica officinalis* contain various nutraceuticals such as terpenoids, curcuminoids and polyphenols/flavonoids respectively, they are all endowed with biological effects such as antioxidant, anti-diabetic, immunomodulatory and hypo-lipidemic properties.<sup>[10]</sup>

### 2. *Saptavimshatika Guggulu* and *Haridra Churna*

One recent study was performed at J.S. Ayurved College, Nadiad, Gujarat by Nirmal Alodariya *et al*; regarding 'Clinical evaluation of *Saptavimshatika Guggulu* and *Haridra Churna* in the management of Type-2 Diabetes Mellitus'. In the outcome of study they concluded that majority of the symptoms of diabetes like polydipsia, polyuria, polyphagia, fatigue, weakness; numbness and tingling sensation were improved percentagewise. Out of those; improvement in polyuria and fatigue remained highly significant ( $P=0.004$  and  $0.008$  respectively), whereas, polydipsia remained significant ( $P=0.04$ ). Relief observed in rest of symptoms was insignificant. In the same study while doing quantitative analysis they observed that, HbA1c% was improved by 6.07% and remains statistically significant while 6.26% improvement observed in FBS and 1.82% increase observed in PPBS remained statistically insignificant. The results suggest that the drug is having slow and steady effects on the disease pathology. Further in DSQ (Diabetes Symptom Questioner) score 19.76% improvement was found. This is statistically highly significant.<sup>[11]</sup>

### 3. *Kathakakhadiradi Kashyam*

Abdul Azeez *et. al*, have conducted clinical study on a poly-herbal compound entitled, 'Anti-diabetic effect of Poly-herbal Formulation *Kathakakhadiradi Kashyam* (KKS) in Streptozotocin induced Diabetic rats. *Kathakakhadiradi Kashyam* is a well-known polyherbal *Kashyam* widely used in the treatment of diabetes in Ayurveda. *Kathakakhadiradi kashyam* is an Ayurvedic medicinal preparation which is widely used in the effective management of diabetes and maintaining associated symptoms such as polyuria, fatigue, constipation, dryness of mouth, polydipsia and excessive sweating. Normal human dose ranges from 10-15ml twice a day before food.

In this study they used oral glucose tolerance test as a parameter. Oral glucose tolerance test is a single day single administration test to find the effect of loaded glucose on blood glucose in KKS administered, standard drug administered and

control group (vehicle administered) animals. Oral glucose tolerance test result shows a dose dependant blood glucose reducing nature of KKS on glucose loaded non diabetic rats. More significant reduction was exposed at doses 1.08 and 2.16ml/kg doses. Comparing to standard anti diabetic drug (Glibenclamide 5mg/kg) statistically significant activity was shown by KKS when administered at a dose of 2.16ml/kg dose. The ratio of percentage reduction observed between standard drug treated group (Glibenclamide) and KKS treated group from the 7<sup>th</sup> day to 14<sup>th</sup>, 21<sup>st</sup> and 28<sup>th</sup> day are 43.99:35.54, 46.53:44.4, 53.88:43.5 respectively.<sup>[12]</sup>

### 4. *Talapotaka Churna*

Guruprasad C. Nille and colleagues from department of *Rasashastra*, faculty of Ayurveda, Institute of medical sciences Banaras Hindu University, Varanasi have recently performed a study entitled, Clinical evaluation of *Talapotaka Churna*- A polyherbal Ayurvedic formulation in type 2 diabetes mellitus. This formulation has been firstly quoted by *Acharya Vallabhacharya* of the 15<sup>th</sup> century in his classical text *Vaidya Chintamani*. *Talapotaka Churna* has four commonly available ingredients with specific proportion. *Avartaki*- *Cassia auriculata* - 4 parts, *Amalaki*- *Embllica officinalis*- 2 parts, *Haridra*-*Curcuma longa*- 1 part, *Daruharidra*- *Berberis aristata*- 1 part. The present study revealed that *Talapotaka Churna* along with modern therapy is more beneficial for diabetic patients with respect to subjective and objective parameters. It is also found to be safe and free from any side effects.<sup>[13]</sup>

### 5. *Karanja Decoction*

According to one research conducted by Dr. Poonam Sharma and colleagues at Department of *Dravyaguna*, IMS, BHU, Varanasi, seed powder and stem bark decoction of *Karanja* both are effective therapeutic medicine for management of *Madhumeha*.<sup>[14]</sup>

### 6. *Gokshuradi Guggulu*

*Gokshuradi Guggulu* a polyherbal Ayurvedic formulation is recommended in the management of *Madhumeha*. Research carried out at IPGT and RA, GAU Jamnagar shows best results of *Gokshuradi guggulu* in the management of *Madhumeha*. Drug acts as a *Rasayana* and conservators of glucose utilization, it potentiates oxygen delivery systems and improves cell membrane permeability.<sup>[15]</sup>

### CONCLUSION

The knowledge of medicine is a prime factor for successful medical practice. For overall well-being and issues related with life style disorders rational use of natural products is gaining popularity. So as to combat various lifestyle disorders including diabetes



modern society is choosing natural products over the use of artificially prepared chemicals. Above mentioned studies will ultimately boost the use of traditional remedies due to an array of scientific proof in its favour. Proper medication as per Ayurvedic guidelines along with proper *Aahar*, *Vihar* and *Yoga* will definitely control diabetes without any untoward effects. From various researches carried out at different institutions among different population groups, it is clear that there is a lot of potential in Indian herbal medicine to control diabetes if used judiciously.

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