



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2017; 3(2): 170-172  
www.allresearchjournal.com  
Received: 29-12-2016  
Accepted: 30-01-2017

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## Literary review study on effect of haridra on type 2 diabetes

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#### Abstract

The market at present is flooded with a variety of anti-diabetic drugs to provide diabetic patients with relief. Almost all the anti-diabetic drugs are liable to have untoward effects on our body. It is the need of the hour to provide mankind with near perfect solution to patients suffering from diabetes. The article enlists the action of the herbal drug haridra on type 2 diabetes. It also highlights upon the issue of the side effects caused by modern antidiabetic drugs. Article will help the reader to understand the role of haridra on type 2 diabetes and thereby promote further research on the scope and usage of herbal medicines and haridra in particular.

**Keywords:** Haridra, type 2 diabetes

#### Introduction

*Haridra*; *Curcuma longa* Linn is a medicinal plant enlisted in *Dravyaguna*. Man has been using herbal drugs and various plant products for combating of various diseases since times immemorial. The Indian subcontinent is enriched by a variety of flora both aromatic and medicinal plants. This vast flora has been utilized to a great extent as a source of many drugs in the Indian traditional system of medicine. *Haridra* is one such medicinal plant explained extensively in Indian materia medica i.e. the *Dravyaguna Shastra*. Various research works have been carried out on *Haridra* and it has been found that this drug is a potent anti-diabetic drug in type 2 diabetes. Type 2 diabetes is a serious medical condition that often requires the use of anti-diabetic medication, or insulin to keep blood sugar levels under control. However the development of type 2 diabetes and its side effects (complications) can be prevented if detected and treated at an early stage. Following pre-diabetes or metabolic disorder, type 2 diabetes can potentially be avoided through diet and exercise. Of the total global diabetes rate, 90% are living with type 2 diabetes but it is estimated that up to half of these people are unaware of their condition (undiagnosed diabetes).

#### Need of topic

The market has a number of modern day anti diabetics which the common man is consuming regularly for his solution to type 2 diabetes. The masses are unaware of the side effects these drugs have on their body after their prolonged consumption. Ayurveda offers herbal solution addressing the need for overall well-being and improvement in general health alongwith freedom from the disease. The article throws light upon the action of *Haridra* on type 2 diabetes on which further research is needed to validate its efficacy and safety.

#### Aim and objectives

##### Aim

To do literary review study of the action of *Haridra* on Type 2 Diabetes.

##### Objectives

To do a literary study on Diabetes and *Haridra*.

## Materials and methods

Review work done and literature from the classical texts and research websites along with modern medical science literature and allied pharmacological studies have been incorporated in the study

In Ayurveda, turmeric is well known for its therapeutic effect and has been enlisted in *Dashemani Lekhaniya* (emaciating), *Vishaghna* (Anti poisonous), *Kusthaghna* (Anti-dermatosis), The term *Haridra* in Sanskrit means 'an efficacious drug for jaundice it is vowed that this spice belongs to India indigenously and is also referred to as 'Indian saffron'. Originating in India, Turmeric had reached China by 700 AD, East Africa by 800 AD and West Africa by 1200 AD, and also had begun to become popular all through the world. It is also known that the Arab traders had carried with them turmeric to Europe in the 13th century. Many medical properties have been attributed to *Haridra* *Curcuma longa* Linn. Rhizome of *Haridra* is known to possess therapeutic activities and has been used by medical practitioners as an anti-diabetic, hypolipidemic, hepato protective, anti-inflammatory, anti-cancerous, anti-diarrhoeal, anti-asthmatic. *Haridra* is most commonly used in cosmetology.

## Mode of action of *Haridra* in *Prameha*

**1) *Kaphahara karma* and role in Pre-Diabetes:** due to its *Katu-Tikta rasa*, *Ruksha*, *Laghu Guna*, *Ushna veerya* and *Katu Vipaka* it effectively reduces the *dushit Kapha*. All *gunas* of *Haridra* are antagonistic to *Kapha*. Thus *Haridra* acts at the base of *Prameha*. This *Kaphahara karma* of *Haridra* is especially useful in the Pre-Diabetes condition. Pre-Diabetes may be considered as *Kaphaj* type of *Prameha* where the disease shows the signs of progression. Taking control at this stage helps in arresting the disease before it progresses to the complicated stages.

**2) *Pittahara karma*:** Inflammation in the body occurs with the involvement of *dushit Pitta*. *Haridra* due to its *Tikta rasa* significantly reduces *dushit Pitta* and thus reduces inflammatory nature. *Haridra* helps in healing the inflammation and also deals with *Pittaja Prameha*.

**3) *Vatahara karma* and reversal of insulin-resistance:** Due to its *Ushna Veerya* does *Vatashaman* and is helpful in *Vataja Prameha*. By effectively combating *Kapha* and *Pitta*, *Haridra* regularizes and stabilizes the gut and cellular metabolism. The cells are detoxified, blockages get removed and all the channels are cleansed. This helps in the nourishment of the *Dhatus* and aids unobstructed movements of *Vata*. The *Dhatus* thereby regain strength and thus immunity is restored. *Vata* is the chief controller of all the activities in the body functions and the whole body physiology is restored. This includes the proper production of insulin (*agni*) and its proper utilisation in the periphery, hence warding off the insulin resistance and its bad consequences.

## Karma of *Haridra* on *Dhatus* in *Prameha*

**1) Anti-atherosclerotic property:** *Haridra* due to its *tikta-katu rasa*, *ushna veerya*, *katu vipaka* and *laghu, ruksha gunas* removes blockages in the blood vessels hence making the circulation of blood and nutrients easy. *Vitiated kapha* and *meda* get accumulated in the blood vessels and give rise to atherosclerosis. The circulating glucose is broken down

by *Haridra* and it further facilitates the absorption of free glucose by cells due to its *Srotoshodhana karma*. Involvement of *Rakta* in *Prameha* points out to the presence of *Kapha* elements (glucose) in the blood.

## 2) Lipolytic and anti-cholesterol property of

***Haridra*:** *Abaddha Medas* is the dhatu which is primarily involved in the causation of *Prameha*. According to modern concepts excessive weight, obesity, cholesterol are the greatest risk factors for Diabetes Mellitus. *Haridra* is a proved lipolytic. *Meda* is a *Kapha pradhan dravya*. All *Kaphahara* drugs are mostly *Medahara* drugs. *Haridra* acts on this hazardous combination of *Meda* and *Kapha* and hence wards off *Prameha*. *Haridra* also destroys the cholesterol, excess fat and helps in shedding weight. Weight loss helps in regression of pathology in *Prameha*. This action is attributed to its *tikta-katu rasa*, *ushna veerya*, *katu vipaka* and *laghu, ruksha gunas*.

**3) *Haridra*** does the karma of *srotoshodhana* and reduces *dushit pitta* and *kapha* facilitating free movement of *vata* and hence helping in recovery of *dhatu*s having *kapha pradhanta* like *mamsa, lasika, ambu, majja, vasa, shukra*.

## 4) Metabolic correction and anti-oxidant property by

***Haridra*:** due to its *ushna veerya, katu tikta rasa* does *shodhan* of *rasa dhatu* and hence helping in free circulation of *poshakamsha* and helping in restoring normal body functions

**5)** There is debility, reduced immunity, organic and tissue destruction, allied complications due to oxidation process and here *Haridra* plays a major role as it has an anti-oxidant effect

**6) Immune-modulation action of *Haridra*:** due to its antioxidant nature, *Haridra* helps in immune modulation and helps in free circulation of *poshakamsha*. Ojas attains strength due to proper nutrition thereby improving immunity.

## 7) Regulation of Liver Functions and correction of Anaemia by *Haridra*:

*Haridra* removes the blockages in liver due to its *tikta* and *katu rasa*, *ushna veerya, katu vipaka* and *laghu* and *ruksha gunas*. Likewise haemopoetic functions are also restored. the function of liver is to metabolise the fat and detoxify the nutrients passing through it.

## 8) Detox effect of *Haridra*:

*Haridra* reduces the blockages in the cells and re-establishes their normal functioning. Pharmacological study on *Haridra*-Turmeric rhizome powder is very useful with *Amla* juice and Honey in *Madhumeha* diabetes mellitus [1]. The ingestion of 6 g *Curcuma longa* increased postprandial serum insulin levels, but did not seem to affect plasma glucose levels or GI, in healthy subjects. The results indicate that *Curcuma longa* may have an effect on insulin secretion [2]. The active principles in the rhizome of Turmeric plant viz; curcuminoids lower lipid peroxidation by maintaining the activities of antioxidant enzymes like superoxide dismutase, catalase and glutathione peroxidase at higher levels. Antioxidant properties of *curcuma longa* is due to curcumin and its three derivatives (demethoxy curcumin,

bisdemethoxy curcumin and diacetyl curcumin) [3]. A scientific and systemic exploration reveals the antidiabetic, hypolipidemic and hepatoprotective effects of Curcuma longa freeze dried rhizome powder dissolved in milk which could be used as an effective and safe antidiabetic dietary supplement of high potential [4]. Curcuma longa is known to contain curcuminoids, glycosides, terpenoids, and flavonoids. Maximal inhibition of the enzyme Human Pancreatic Amylase (HPA) was obtained with Curcuma longa isopropanol extract and acetone extract. This inhibitory action on HPA causes reduction in starch hydrolysis leading to lowered glucose levels [5]. *Acharya Charaka* has mentioned *Haridra* with *amla swarasa* and *madhu* in all types of *Prameha*. *Haridra* has already been proven clinically for its anti-diabetic activity.

Effects of Diabetes on body-Pancreas Malfunction, Excessive Urination, Lack of Concentration, Ketoacidosis, Damaged Blood Vessels, Loss of Consciousness, Lack of Concentration, Bacterial, Fungal, and Yeast Infections, Extreme Thirst, High Blood Pressure, Protein in the Urine, Stroke, Diabetic Retinopathy, Cataract, Glaucoma, Sweet-Smelling Breath, Stomach Problems, Foot Problems,

### Conclusion

Potential side effects of common diabetes drugs

**Sulfonylureas:** low blood sugar, upset stomach, skin rash or itching, weight gain

**Thiazolidinediones:** weight gain, risk of liver disease, anaemia risk, swelling of legs or ankles

**Biguanides/Metformin:** sickness with alcohol, kidney complications, upset stomach, tiredness or dizziness, metal taste

**Meglitinides:** weight gain, low blood sugar

Alpha-glucosidase inhibitors: gas, bloating and diarrhoea

However almost all the anti-diabetic drugs are liable to produce side effects on the human body. Pharmacological trials and in vitro trials have been conducted extensively on the herbal anti diabetic drugs and positive findings have been observed. Many clinical trials have been conducted till date and it has been observed that herbal preparations are potentially suitable for the treatment of diabetes and where a significant difference has been observed. Now the question arises of the clinical relevance and implications of the efficacy of herbal medicines. It seems that herbal medicines have been found to be more effective, but this may be so to lower or stop the consumption of modern anti diabetic drugs and hence reduce the adverse effects of modern anti diabetic drugs. But this is going to generate a major need to have a data for long time on the safety of the usage of herbal medicines. It may be concluded that a number of herbal medicines are useful in prevention and reduction of diabetes but still this topic remains under researched and does seem to merit further attention.

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