

Can be Turmeric a Potent Option for Managing and Preventing Diabetes?

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ABSTRACT

Diabetes is a chronic metabolic condition with several etiologies that necessitate either lifelong medication therapy or lifestyle modifications. The use of herbal supplements in the prevention and management of diabetes has recently been supported by a steadily increasing number of research from scientists. One of the most researched natural compounds in traditional medical treatment is curcumin, although due to its physicochemical properties, it has poor solubility, absorption, and effectiveness. This article aimed to review the use of Turmeric (curcumin) in managing and preventing diabetes. These findings suggest that curcumin may have promise for use in the treatment of diabetes patients.

Introduction:

Diabetes is an indicator present in humans with increased levels of blood glucose. Diabetic patients are unable to break down glucose because of defects in the secretion or action of insulin (1). In addition to biological and hereditary factors, industrialization, obesity, poor physical exercise, and excessive consumption of food and drink are all known to contribute to the development of diabetes (2). Increased levels of free radicals and oxidative stress in the human body are some of the factors causing pancreatic β -cells to produce less insulin (1, 2). Antioxidant therapy may therefore be crucial in the treatment of diabetes (3). Due to its potent therapeutic characteristics, studies have demonstrated that turmeric (curcumin) can be quite helpful in treating diabetes by attempting to stop the decline of B-cell activities (4). This article aims to present a summary of various studies and methods into the promising use of curcumin for the treatment of diabetes.

Turmeric is a type of spice that has been used in India for centuries in food (5). Turmeric has been used widely for managing Diabetes type 2 as an alternative natural treatment (6). Turmeric, which originated from the root of the plant named *Curcuma longa*, has been used for thousands of years as a diabetic therapy in Ayurvedic and as a traditional Chinese medicine (7). Also, the Chinese use turmeric as an alternative medication, which is used to promote blood circulation and reduce pain (8). It is currently used to relieve pain and cancers (9). Curcuminoids have anti-inflammatory and anti-cancer capabilities in addition to being able to treat acute inflammation and severe depression (9, 10). Due to its anti-inflammatory and antioxidant properties, curcumin may delay the onset of diabetes. It prevents some naturally occurring enzymes from having an inflammatory effect. Because of this, turmeric is a widely used remedy for arthritis and muscle pain.

Curcumin is the main potent ingredient of turmeric (11). It is a yellow golden powder spice that has attracted scientific interest as a potential therapeutic agent for experimental diabetes and for the treatment of diabetic patients' problems (12, 13) because many researchers approve that it lowers hyperglycemia in laboratory animals and also it is cheap and safe (14,15). Today, curcumin is widely used in food as a spice and as a body immune booster. Researchers think curcumin may have abilities to reduce oxidative stress and inflammation therefore; they think that curcumin may be therapeutic for those who have diabetes because of this (16, 17). The medicinal curcumin's limitations—low solubility, low stability, inadequate bioavailability, low penetration, rapid metabolization, and targeted efficacy have long been recognized (18)

In 2019, a systemic review has been found and suggested to use of curcumin for preventing and managing diabetes type 2, due to its prosperities as anti-inflammatory and antioxidant. By changing the activity of enzymes involved in metabolic processes, curcumin can help individuals with diabetes manage their lipid metabolism and reduce blood levels of triglycerides and cholesterol (18, 19). Curcumin is also capable of relieving other symptoms of metabolic syndrome, by reducing insulin resistance using enhancing insulin sensitivity, inhibiting the growth of newly formed fat cells, and lowering blood pressure (19).

Advantages of taking curcumin for treating diabetes:

- Reducing arthritic pain and inflammation
- Reducing the signs of anxiety

- Decrease the pain in the muscle
- Promoting normal kidney function
- Removing triglycerides from the blood (20, 21)

Disadvantages of taking curcumin for treating diabetes:

- Using high doses of curcumin may have some side effects such as gastrointestinal disturbance like vomiting, nausea, yellow diarrhea, constipation, and rash on the skin (22, 23).

Limitations:

- Turmeric should not be consumed by those who:
- Pregnant women or those who want to be pregnant
- Breastfeeding
- Under 12 years old
- Patients who receiving therapy for liver disease or anemia (24)

Conclusion:

- Since curcumin is regarded to be an anti-inflammatory and antioxidant, there is strong evidence that turmeric can significantly decrease the symptoms of diabetes and may even prevent pre-diabetic people from having diabetes type 2. Persistent inflammation also affects diabetes and insulin resistance. Your resistance to the effects of insulin is increased by chronic inflammation caused by too much body fat. As insulin resistance increases, blood sugar levels continue to rise and if untreated will result in the development of diabetes type 2. Inflammation may potentially affect diabetes type 1. It is believed that inflammation catalyzes for the inflammatory response that leads to the body's shutdown of insulin production in persons with diabetes type 1.

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