

## Chapter 3

# Spices: Pharmacological and Anti- Diabetic Activities

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### ABSTRACT

*The term “spices” has been derived from the word “species,” which was connected to the group of exotic foods in medieval times. Spices and herbs have a long history of culinary use, medicinal properties, and as additives and thus have a distinct place in Ayurveda. Exhibiting the merits of spices by scientific methods still remains a challenge. This review investigates the anti-diabetic properties in preventing and managing diabetics and associated complications with commonly used spices. The bioactive compounds in these spices are additionally discussed. The major aim and object of the present work is to investigate the customary therapeutic usage of basic Indian spices and to correlate their observed pharmacological activities with the presence of explicit bioactive compounds present for the treatment or counteractive action of diabetes. This includes the basic underlying mechanism of their blood glucose lowering property including exploratory experimental evidence from proposed animal and human trials.*

### INTRODUCTION

The term “spices” has been derived from the word “species,” which was connected to the group of exotic foods since medieval times. These aromatically rich, home-grown, herbal food stuff has been utilized for ages to enhance food flavors and nourishments. Spices and herbs might be characterized as a group of obscure sustenance, subordinates that have been used to intensify the organoleptic qualities of foods. Generally, if a plant leaf is used in minor quantities during cooking, it might be alluded to be a culinary herb, and if some other piece of the plant is regularly dried and used, then it is known as a spice. Different parts of the plant may be used as a spice such as the buds (cloves), bark (cinnamon),

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## Spices

roots (ginger), berries (peppercorns), fragrant seeds (cumin), and even the stigma of a flower (saffron). Ayurveda, the traditional medicinal system of India that has been developed over 5000 years prior, in the Himalayas and the learning being transmitted orally until it was recorded in Sanskrit verse — the Vedas — around 1500 BC. Ayurveda centers around ailment, counteractive action and wellbeing promotion, with an accentuation on the diet and eating pattern. Herbs and spices are used not only as additives or an aromatically flavoring substance but also as a pharmaceutical agent owing to its medicinal properties for a long time and thus have a distinct place in Ayurveda. In India, these herbs and spices are used in reasonable amounts in meal preparation, and significant quantities have been observed to be consumed in a single meal. It has been reported that such herbs and spices can supply good amounts of nutrients to the body. In the ninth century, the Emperor Charlemagne is cited as saying, “a herb is a companion of doctors and the praise of cooks”, recommending the dual role of herbs and spices for food flavouring and health benefits, though the theory of health benefits has been established, but the mechanism is yet to be postulated. Keeping in mind the age-old history of utilization of herbs and spices, with strong roles in social legacy, in the valuation for sustenance and its connection to wellbeing, they might be viewed as one of the first-ever recorded functional food or foods with nutraceutical properties. Exhibiting the merits of spices by scientific methods still remains a challenge, especially when contrasted and compared with pharmaceutical agents. Pharmaceuticals are little atomic weight mixes expended in a purified and concentrated form. Food is generally eaten in mixes with other stuffs, in moderately huge, unmeasured amounts, under profoundly mingled conditions. The real challenge lies not in demonstrating whether herbs and spices have medicinal benefits but lies in characterizing these benefits and developing the techniques to define them by scientific methods. The manner by which foods are today examined isn't constrained to ideas of averting clinical deficiencies and maintaining homeostasis, but rather includes a growing recognition of the way in which food components actively interact with the body to support health and prevent abnormality and overt disease. Setting up this job would include distinguishing novel bioactive mixes to help recognize target benefits with a proposed system of activity. The role of nutrition in the appropriate functionality of the immune system is well established since ancient times (Saeed *et al.*, 2016).

This review investigates the anti-diabetic properties in preventing and management diabetics and associated complications by commonly used spices, for example, cinnamon, fenugreek, garlic, onion, cloves, ginger, turmeric, curry leaves, and cumin. There are different ways to deal with the treatment and prevention of diabetes as well as secondary related complications. Nonetheless, the determination of spices may rely upon a few components, which incorporates the stage of diabetes and types of comorbidities that the patients may be suffering from. The bioactive compounds in these spices are additionally discussed. The major aim and object of the present work is to investigate the customary therapeutic usage of basic Indian spices and to co-relate their observed pharmacological activities with the explicit bioactive compounds present in them for the treatment or counteractive action of morbid disorder *i.e.*; diabetes, including their basic underlying mechanism for the blood glucose-lowering property including the exploratory, experimental evidences from proposed animal and human trials.

## Diabetics Mellitus

Diabetes Mellitus - a silent ailment, is currently perceived as the fastest growing threat to public health, in practically all the nations of the world. According to the WHO fact sheet, around 422 million people are suffering from this disease, of which 69.2 million are Indians (WHO, 2016). It is the third most non-

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