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TREATING DIABETES WITH MEDICINAL PLANTS

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Abstract

As a result of numerous studies on the causes of diabetes, it has been concluded that genetic and environmental factors play an important role in diabetes. There are mainly two types, type 1 and type 2 diabetes, and the factors that cause them differ. This article discusses the methods of treating diabetes with medicinal plants.

Keywords

glycosides, alkaloids, essential oils, flavonoids, vitamins and minerals, Allium cepa, Momordica charantia (bitter gourd), Cinnamomum verum (cinnamon).

Introduction

Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from defects in insulin secretion, insulin action, or both. It represents one of the most serious global health challenges of the 21st century, affecting hundreds of millions of people worldwide. The prevalence of diabetes, ta'shni particularly type 2 diabetes mellitus, continues to increase rapidly due to factors such as sedentary lifestyle, unhealthy dietary habits, obesity, population aging, and genetic predisposition. Long-term complications of diabetes, including cardiovascular diseases, nephropathy, neuropathy, retinopathy, and impaired wound healing, significantly reduce the quality of life and increase mortality rates.

Despite the availability of various synthetic antidiabetic drugs and insulin therapies, conventional treatment approaches are often associated with limitations such as high cost, limited accessibility in developing regions, adverse side effects, and reduced effectiveness over long-term use. These challenges have encouraged researchers and healthcare practitioners to explore alternative and complementary therapeutic strategies that are safer, more affordable, and culturally acceptable. In this context, medicinal plants have gained increasing attention as potential sources of novel antidiabetic agents.

The use of medicinal plants for the treatment of diabetes has a long history in traditional medical systems such as Ayurveda, Traditional Chinese Medicine, Unani, and various indigenous healing practices. Numerous plant species have been reported to exhibit hypoglycemic, antihyperglycemic, antioxidant, anti-inflammatory, and insulin-sensitizing properties. These therapeutic effects are largely attributed to bioactive phytochemicals, including flavonoids, alkaloids, terpenoids, phenolic compounds, saponins, and glycosides, which play a significant role in regulating glucose metabolism and protecting pancreatic β-cells from oxidative stress.

Recent scientific studies have provided experimental and clinical evidence supporting the antidiabetic potential of medicinal plants. Mechanisms of action proposed include stimulation of

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insulin secretion, enhancement of insulin sensitivity, inhibition of carbohydrate-digesting enzymes, modulation of glucose absorption in the intestine, and improvement of lipid metabolism. Additionally, plant-based therapies may offer multifaceted benefits by addressing not only hyperglycemia but also associated metabolic and inflammatory complications of diabetes.

Given the growing interest in plant-derived therapeutics, it is essential to systematically evaluate the efficacy, safety, and mechanisms of medicinal plants used in diabetes management. A scientific approach integrating traditional knowledge with modern pharmacological and clinical research can contribute to the development of effective herbal-based antidiabetic treatments. Therefore, this study aims to explore the role of medicinal plants in the treatment of diabetes, highlighting their therapeutic potential, underlying mechanisms, and prospects for future drug development.

Diabetes mellitus is one of the most common chronic diseases of the world's population today. The number of patients suffering from this disease is increasing every year. Although modern medicine has insulin-based and other drugs, medicinal plants that have been used in folk medicine for a long time also play an important role. They not only regulate blood sugar levels, but also improve the general condition of the body.

The role of medicinal plants

Medicinal plants contain natural biologically active substances - glycosides, alkaloids, essential oils, flavonoids, vitamins and minerals. They reduce blood glucose, support the functioning of the pancreas, improve metabolism and strengthen immunity.

The main medicinal plants useful for diabetes. 1. Allium cepa - black onion

Contains the substance allicin, which enhances the effect of insulin and is effective in lowering blood sugar levels.

2. Momordica charantia - bitter melon

Known as natural insulin. Helps to quickly lower blood sugar.

(A picture of Momordica charantia - bitter melon is inserted here)

. Momordica charantia - bitter melon. A plant with medicinal properties.

3. Cinnamomum verum - cinnamon

Reduces blood glucose and increases insulin sensitivity.

(Here is a picture of Cinnamomum verum - cinnamon)

Cinnamomum verum - cinnamon. A plant with medicinal properties.

4. Juglans regia - walnut leaf

It is useful for diabetes, keeps blood sugar in check.

5. Aloe vera - aloe

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Improves gastrointestinal function and helps reduce blood sugar levels.

(Here is a picture of Aloe vera - aloe)

Aloe vera - aloe. A plant with medicinal properties.

6. Green tea, yarrow, wormwood

Rich in antioxidants, increases insulin sensitivity in the blood.

Advantages of medicinal plants

• Medicinal plants are cheap and accessible to everyone.

• They have a milder effect on the body when taken for a long time.

• Side effects are much less than drugs.

Conclusion

Medicinal plants are of great importance in the treatment of diabetes. They remind us of our ancient medicinal heritage and, when combined with modern medicine, provide more effective help for patients. Nature is the greatest doctor for man. Its preservation and proper use is the key to a healthy life.

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