Health benefits of Cinnamon

Cinnamon is a popular spice used worldwide. The aromatic spice belongs to the genus cinnamomum, however true cinnamon comes from one specific species termed cinnamomum verum. Other types come from several different cinnamomum trees and are collectively referred to as cassia cinnamon. Both the species contain almost the same constituents, but true cinnamon has the advantage of low coumarin content. Coumarin has propensity to worsen liver disease, hence a low coumarin is always helpful.

Chemical constituents present in cinnamon

Almost every part of the tree, such as bark, root, leaves, flowers and fruits, possess medicinal properties. The main chemical constituents include vital oils and resinous derivatives such as cinnamaldehyde, cinnamate and cinnamic acid. The spicy taste and fragrance of cinnamon is attributed to the presence of cinnamaldehyde. As cinnamon ages, the amount of resinous elements increase and this imparts a dark color to it.

What are the health benefits of cinnamon?

Cinnamon is known to possess numerous health benefits. In addition to being an anticancer, antioxidant, anti-inflammatory, antidiabetic, antimicrobial agent, it has been reported to have beneficial actions against neurological conditions such as Alzheimer’s diseases and Parkinson's disease.

Antioxidant Activity

Antioxidant act against free radicals and hence protects against damage in metabolic disorders and age-related syndromes. As per a study by Mancini-Filho et al., extracts of cinnamon have considerable antioxidant activities. The constituent responsible for this activity are flavonoids. Flavonoids which are isolated from cinnamon have demonstrated to have free-radical-scavenging capabilities which contribute to their antioxidant activity.

Anti-Inflammatory Activities

Several studies have indicated the anti-inflammatory activities of cinnamon. As per a 2005 study published in the journal Biochemical Pharmacology, 2′-hydroxycinnamaldehyde isolated from cinnamon bark exhibited an inhibitory effect on the production of nitric oxide, which plays a key role in the pathogenesis of inflammation. Hence, cinnamon could be a potential anti-inflammatory agent and can have beneficial effects for the therapeutic treatment or prevention of inflammation-mediated diseases.

Anticancer Activity

Procyanidins, a major flavonoid found in cinnamon has exhibited anti vascular endothelial growth factor subtype 2 (VEGFR2) kinase activities. Vascular endothelial growth factor (VEGF) is a key contributor to the formation of blood vessels. Thus, cinnamon with its VEGF inhibitory

activity can hinder angiogenesis or blood vessels overgrowth in cancer and could potentially be used in cancer prevention.

Antidiabetic Activity

Polyphenols isolated from cinnamon have been found to act as insulin-like molecules. Many mechanisms have been attributed to the glucose lowering effects of cinnamon. Cinnamon has been shown to increase glucose entry into cells. Another mechanism postulates that cinnamon causes an increase in the expression of peroxisome proliferator-activated receptors (PPAR), which have been associated with a glucose lowering effect. Cinnamon has also been known to possess an inhibitory effect on enzymes involved in the breakdown of carbohydrates.

Neurological Disorders

Cinnamon has been shown to have beneficial effects in neurological conditions such as Parkinson’s disease and Alzheimer's disease.

As per a study by scientists at the Rush University Medical Center, cinnamon may be used to protect dopaminergic neurons in Parkinson’s patients. The study found that cinnamon is involved in upregulating proteins Parkin and DJ-1, which lead to protection of the dopaminergic neurons in mouse model of Parkinson’s. These results if replicated in humans would be game changing for patients of this devastating disease.

Another study published in the Journal of Alzheimer's Disease, showed that cinnamon extracts have inhibitory actions on tau aggregation and filament formation, which are characteristic features of Alzheimer's disease.

Antimicrobial Activity

A number of studies have demonstrated the antimicrobial activities of cinnamon on bacteria, yeast and fungal species. The combination of cinnamon bark extract and honey are known to have beneficial activity against acne-causing bacteria.

Cardiovascular Diseases

Cinnamic aldehyde and cinnamic acid, two important constituents of cinnamon have shown activity against myocardial ischemia, which shows that the spice has potential to treat cardiovascular diseases. Another constituent termed cinnamophilin have shown inhibitory activity against thromboxane mediated vascular smooth muscle cell proliferation, which are involved in formation of atherosclerosis.

Looking at the enormous benefits which this tasty spice offers, including cinnamon into your diet might seem irresistible. However, one should not go overboard with the same due to the possible adverse effects associated with coumarin.

Sources

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