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Cinnamon: Aromatic Delight with Medicinal Might: A Review

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Abstract

Cinnamon is a widely used spice derived from the bark of several Cinnamomum species. It is valued for its flavour and aroma, and has been used in traditional medicine for centuries. This review summarizes the phytochemical composition, biological activities, and medicinal properties of cinnamon. The article outlines the major volatile compounds found in cinnamon, including cinnamaldehyde, cinnamyl acetate, cinnamyl alcohol, eugenol, and cinnamic acid. Additionally, the review highlights the antimicrobial, antioxidant, and anti-inflammatory properties of cinnamon. Finally, the article discusses the potential health benefits of cinnamon consumption, Including blood sugar control, digestive health, and heart health.

Keywords: Spice, aroma, biological activities, flavouring agent.

I. Introduction:

Cinnamon is a seasoning used in both savory and sweet recipes that is manufactured from the internal bark of many trees of the genus (Cinnamomum) & family (Lauracea). One of the herbs that is most frequently used as a spice in cuisine. Foods are frequently seasoned and flavored with cinnamon bark and leaves. Zeylanicum cinnamon is widely utilized in the food processing, cosmetics, flavorings, candy, and pharmaceutical industries. Cinnamon can be used in pickling. It is a common ingredient in many dessert recipes, including those for apple pie, doughnuts, and cinnamon buns, as well as in liqueurs, tea, hot chocolate, spicy candies, and a number of thick soups and other drinks. Cinnamon powder is also used in a number of candies and beverages. Cinnamon is a common ingredient in American cereals, foods made with grains, and fruits. Like other cinnamons, Cinnamomum verum, J. Presl. (Syn. Cinnamomum zeylanicum Nees) (Lauraceae) is mostly used as a cookery herb in both traditional Eastern and Western medicine. Generally known as cinnamon, Cinnamomum verum J. Presl (Lauraceae family) grows primarily in South and South-East Asia. The flavor of cinnamon cassia (C.

cassia) is intense and spicy-sweet. The tastiest and most potent types of cassia are Chinese cassia (Cinnamomum aromaticum) and Vietnamese cassia (Saigon cinnamon, Cinnamomum loureiroii). Essential oils are intricate secondary metabolites that have a distinct aroma, are naturally volatile, and are often less dense than water. These easily evaporative essences are what give plants their enticing aromas. The "vital power" of plants is a term that is frequently used to describe essential oils. These "essential" oils, which differ from fatty oils in that they are volatile and highly concentrated, are compounds that are taken from flowers, leaves, stems, roots, seeds, bark, resin, or fruit rinds. There are about 3,000 identified essential oils, 300 of which have been marketed for use. Between 0.01% and 10% of the plants' total weight can be made up of essential oils. Plenty of interest has been shown in studies on cinnamon essential oil. Cinnamon oil is a clear, oily liquid with a sweet as well as spicy aroma that can be yellow or reddish brown in color. Cinnamon oil is currently utilized extensively in flavors and perfumes, food, medicine, daily necessities, agrochemicals, cosmetics, and many other industries as a result of the benefits listed above. The species that is distilled as well as the section of the plant that is used have a significant impact on the composition of the oil, and consequently, its value and intended uses. It is a crucial component of masalas and curry powders. The flavor business uses cinnamon leaf oil because it is less expensive than cinnamon bark oil. Both the cinnamon stick and the ground powder form of this flavorful and warming spice are readily available. Numerous variables, including location, season, the time of harvest, and the age of the tree, may affect the oil's availability.

Blume essential oil is a yellow-colored oil with a delicate aroma and sweet, pungent flavour. It has a specific gravity of 1.010-1.030 and is soluble in 70% alcohol. Monoterpenes, sesquiterpenes, and phenylpropenes can be used to categorise the relative volatile components. Cinnamomum osophloeum was the subject of a study, and it was found that the plant's essential oil contained a sizable amount of cinnamaldehyde. The blooms are grouped in panicles, are greenish, and have a particular aroma. The fruit is a purple berry with one seed that is one centimeter in diameter. A fragrant essential oil that comprises up 0.5–1% of its makeup is what gives it its flavor. The essential oil, which is typically terpenoids in composition, is dispersed throughout the entire tree. Since ancient times, essential oils derived from aromatic and therapeutic plants have been employed to take advantage of their biological properties. Numerous uses for essential oils have been discovered. Additionally, for thousands of years, they have been used in folk medicine. Due to their carminative, antioxidant, and preservative properties, cinnamon bark and cinnamon essential oil (CEO) have been used as food additives, condiments, and flavoring agents.

II. Methodology:

This overview was compiled based on an extensive literature search conducted using major scholarly sources including Scholarly Journals, Web of Science, SciFinder, and PubMed, Google Scholar for applicable research published since 1999 to 2022, as well as library searches of articles published in peer-reviewed journals.

III. Result and Discussion:

Alkaloids, flavonoids, coumarin, tannins, and other phytochemicals were detected in the screening findings for these substances. All extracts contain phenolic chemicals, terpenoids, saponins, glycosides, anthrocyanins, and terpenoids. A variety of phytochemicals including flavonoids, alkaloids, phenolics, betacyanin, glycosides, coumarins, cardiac glycosides, saponins, quinones, terpenoids and tannins were examined in the cinnamon bark extract.

Major volatile compounds present in Cinnamon is: Cinnamaldehyde 1.99% (range 0.005%–9.383%), cinnamyl acetate, cinnamyl alcohol 0.043% (range *n.d.*−0.083%), eugenol, cinnamic acid (0.001%–0.191%, cinnamyl alcohol (0.001%–0.177%). Coumarin content present are: 0.001%–1.218%. The percentage of essential oil is 0.03%–5.06%. Major volatile compounds in essential oil are: *trans*-Cinnamaldehyde 49.9−97.7%, eugenol 2.77−16.03%, α-pinene 1.64−5.76%, linalool 1.38−3.78%, β-caryophyllene 3.66%, myrcene 1.38%, anethole 0.6%–2.2%, (+)-δ-cadinene 0.09%–3.07%, α-amorphine 0.3%–0.9%, etc. Cinnamaldehyde and eugenol are the most biologically active chemicals found in cinnamon, however there are numerous additional compounds with substantial action.

Coumarin is known to be hepatotoxic for several species, and be a non-genotoxic carcinogen in rodents. The most common ill effects are allergic reactions and gastrointestinal disorders.

IV. Conclusion:

Cinnamon transcends its role as a delightful culinary addition. Its rich chemical profile translates into a range of biological activities, showcasing potential benefits for various aspects of health. From potentially aiding blood sugar control and digestion to offering antioxidant and anti-inflammatory properties, cinnamon presents itself as a promising natural health supplement. However, responsible consumption is key, with an awareness of potential side effects, particularly regarding coumarin content in cassia cinnamon. As research on cinnamon continues to expand, its diverse applications in food science, nutraceuticals, and alternative medicine hold exciting possibilities for the future. Overall, cinnamon's captivating fragrance and flavour are intertwined with a potential to promote well-being, solidifying its place as a multifaceted treasure trove within the world of spices.

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