

Cinnamon

OVERVIEW

As in Figure 1, Cinnamon, a member of the *Cinnamomum* spp., Lauraceae family, is a unique natural product that has been the subject of extensive and rigorous research. This family, with over 250 evergreen trees, is predominantly found in Asia, China, and Australia. Among the most studied varieties are *Cinnamomum verum* and *Cinnamomum zeylanicum*, also known as natural cinnamon, Ceylon cinnamon, or Mexican cinnamon. The previous botanical name for *C. verum*, *C. zeylanicum*, is derived from the last name for Sri Lanka, Ceylon. Various components of cinnamon, including leaves, bark, fruits, root bark, flowers, and buds, have been used to isolate essential oils and extracts. Cinnamon is composed of more than 80 compounds that serve various purposes. Eugenol, phenol, linalool, and cinnamon aldehyde are the primary ingredients in cinnamon extracts and essential oils.

Regulations: Had been registered in the following countries: United States of America (USA).

Registration number (S.A.): Not available.

General Information:

✓ **Registered Company:** Ionis Pharmaceuticals and AstraZeneca.

Mechanisms of action

Cinnamon is well known as a culinary herb and has various medicinal applications. Furthermore, different studies have been conducted on the effects of cinnamon on gynecological issues, diabetes management, and pregnancy. In addition to its anti-inflammatory, cardio-protective, antioxidant, and antibacterial effects, according to the published research, these effects are the result of many active ingredients, such as cinnamaldehyde, which was reported to be a primary ingredient of cinnamon essential oil and extract and is responsible for cinnamon's organoleptic characteristics as well as its antibacterial and antifungal properties via inhibition of its growth. Another powerful compound in cinnamon E.O. is eugenol, which has potent antimicrobial effects. It works by destroying the cell membrane in a dose-dependent way, leading

to cell shrinkage and death. It has been found that several flavonoids derived from cinnamon have antioxidant and free radical scavenging properties that may have advantages such as anti-tumor and anti-cancer effects. The effects of cinnamon on lipids levels and glucose metabolism are strongly linked to its cardiovascular benefits since it can increase insulin sensitivity, lower circulating insulin concentrations, and lower systolic blood pressure. Also, some other studies documented anti-allergic effects by suppressing IgE antibody synthesis and inhibiting mast cell degranulation and histamine release.

Indications

Some published articles have documented the potential benefits of using cinnamon for diabetic and obese patients, offering a ray of hope in the field of natural medicine.

While there are numerous potential applications for cinnamon, it is crucial to note that adequate, accurate evidence is needed for the following indications: Allergic rhinitis and Chronic Obstructive Pulmonary Disease (COPD). This underscores the importance of further research in these areas.

Common cold, Denture stomatitis, Diarrhea, Dysmenorrhea, Dyspepsia, Hypertension, Influenza, Intestinal parasite infection, Irritable Bowel Syndrome (IBS), Migraine headache, Polycystic ovary syndrome (PCOS).

Dosing/administrations

Adult

The most common dose for adults is 3 g daily, divided into smaller doses. It has also been used in the 1-9 g daily dose range for 2-3 months. However, higher doses can be toxic, especially for individuals with liver problems. Therefore, it is essential to follow the dosage and consult a healthcare professional before use.

Dose in Renal/Hepatic Failure/Geriatric Dose: No dosage adjustment is needed.

Indicated for pediatrics: Safety and effectiveness not established in pediatric patients

Dose adjustment and warning

While cinnamon is generally considered safe for use as a spice or flavoring agent, it is important to note that high doses or prolonged use may lead to hepatotoxicity due to coumarin compounds. This highlights the need for caution and moderation when using cinnamon.

Fatal abnormalities for pregnant women may be found with doses higher than those available in food. While lactating women need more safety information.

Pharmacokinetic

No sufficient available data.

Hussa Mobarak Muwainea, BSc.
Pharm, MSc. Toxicology Prince Sultan Military
Medical City, Riyadh, SAUDI ARABIA.

Received: 15-1-2023;
Accepted: 22-5-2023.

Access this article online	
	www.ijpcs.net
	DOI: 10.5530/ijpcs.2024.13.13

Adverse effect

Orally

- Bloating.
- Dyspepsia.
- Nausea.

Topically

- Allergic dermatitis.
- Irritation of mucous membranes and skin.

Drug interaction

- Anti-diabetic medication.
- Anti-hypertensive medication.
- Herbs and supplements with hypoglycemic or hypotensive effects.

Toxicology

Not enough information is available, but some reported cases were mentioned as having teratogenic effects. Other studies document loss of consciousness in addition to nausea and vomiting in the child population.

Contraindications: Not available.

Precautions: Reduced serum vitamin A levels have been reported.

Monitoring Requirements: Not available.

Sound-Alikes/ Look-Alikes: Not available.

High Alert: Not available.

Boxed warnings or alerts issue: Not available.

Toxicity if antidote required: Not available.

Storage if there is a particular condition. Store in the original carton refrigerated between (2-8 C).

Patient counseling

How to use this natural product

You can add it as a small flavoring agent to your food or drinks.

Avoid receiving it with hypotensive or blood glucose-lowering drugs.

Stay under 9 g per day.

Avoid using it if you have allergies to cinnamon or one of its ingredients.

Tell your doctor that you received cinnamon.

Please do not use it during pregnancy due to the presence of a Coumarin compound that has a mischarge ability.

It is contraindicated for hepatic patients.



Figure 1: Cinnamon.

Cost Analysis

Country	Ingredient	Registration No.	Company	Price
United States	Cinnamon 500 mg Pills and Herbal Health Supplement.	B00BMEHI58	Nature's Bounty	19.48\$
United States and international shipment.	Cinnamon Bark 600 mg Veg Capsules.	733739046376	Now food	29.99 \$
Saudi Arabia	NOW Cinnamon Bark Food Supplements-600 mg, 120 Capsules.	B0014UEB6Y	Now food	87 SAR.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

REFERENCES

1. Cinnamon uses, benefits, and dosage herbal database; 2024. Drugs.com. Available from: <https://www.drugs.com/npp/cinnamon.html>.
2. Griffin RM. Cinnamon: health benefits and side effects. WebMD; 2009, May 10. Available from: <https://www.webmd.com/diet/supplement-guide-cinnamon>.
3. Gruenwald J, Freder J, Armbuerster N. Cinnamon and health. Crit Rev Food Sci Nutr. 2010, September 30;50(9):822-34. doi: 10.1080/10408390902773052, PMID 20924865.
4. Meangirlsmassage VA (2011, October 6). Cinnamon; 2024. WordPress.com. MSN. Available from: <https://meangirlsmassage.wordpress.com/2011/10/06/cinnamon/>
5. Available from: https://microsoftstart.msn.com/en-us/health/ask-professionals/in-expert-answers-on-cinnamon/in-cinnamon?questionid=hujll596&type=nutrition&source=bingmainline_nutritionqna.
6. Pro NM, Login; 2023. Available from: <https://naturalmedicines.com>. Available from: <http://therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=330#effectiveness>.
7. Yanakiev S. Effects of cinnamon (Cinnamomum spp.) in dentistry: a review. Molecules. 2020, September 12;25(18). doi: 10.3390/molecules25184184, PMID 32932678.
8. Copilot Pro. iOS application. Version 1.0. Redmond, WA: Microsoft Press Corporation; 2024.