



CASSIA CINNAMON

Also Known As:

Bastard Cinnamon, Canela Molida, Canton Cassia, Cassia, Cassia Aromaticum, Cassia Bark, Cassia Lignea, Cassia Twig, Chinese Cinnamon, Cinnamomi Cassiae Cortex, Cinnamon, Cinnamon Essential Oil, Cinnamon Twig, Cinnamoni Cortex, Cinnamonomi Cortex, Cortex Cinnamomi, Cinnamon Flos, False Cinnamon, Gui Zhi, Keishi, Nees, Ramulus Cinnamomi, Rou Gui, Sthula Tvak, Taja, Zimbluten.
CAUTION: See separate listings for Cassia Auriculata and Cinnamon bark.

Scientific Name:

Cinnamomum aromaticum, synonyms Cinnamomum cassia, Cinnamomum ramulus.
Family: Lauraceae.

People Use This For:

Orally, cassia cinnamon is used for type 2 diabetes, gas (flatulence), muscle and gastrointestinal spasms, preventing nausea and vomiting, diarrhea, infections, the common cold, and loss of appetite. It is also used for impotence, enuresis, rheumatic conditions, testicle hernia, menopausal symptoms, amenorrhea, and as an abortifacient. Cassia cinnamon is also used orally for angina, kidney disorders, hypertension, cramps, cancer, and as a blood purifier.

Topically, cassia cinnamon is used in suntan lotions, nasal sprays, mouthwashes, gargles, toothpaste, and as a counterirritant in liniments.

In food and beverages, cassia cinnamon is used as a flavoring agent.

Safety:

LIKELY SAFE ...when used orally and appropriately. Cassia cinnamon has Generally Recognized as Safe (GRAS) status in the US (4912). Cassia cinnamon has also been safely used in studies lasting up to 6 weeks (11347, 14344).

POSSIBLY UNSAFE ...when used orally in high doses, long-term. Some cassia cinnamon products contain high levels of coumarin. Coumarin can cause hepatotoxicity in animal models (15299). In humans, very high doses of coumarin from 50-7000 mg/day can result in hepatotoxicity that resolves when coumarin is discontinued (15302). In most cases, ingestion of cassia cinnamon won't provide a high enough amount of coumarin to cause significant toxicity; however, in especially sensitive people, such as those with liver disease, prolonged ingestion of large amounts of cassia cinnamon might exacerbate the condition.

PREGNANCY AND LACTATION: There is insufficient reliable information available about the safety of cassia cinnamon when used in medicinal amounts during pregnancy and breast-feeding; avoid using.

Effectiveness:

POSSIBLY INEFFECTIVE

Diabetes. The majority of clinical research shows that cassia cinnamon is not effective for type 1 or type 2 diabetes (16010). Initial clinical research suggested that

cassia cinnamon is effective for type 2 diabetes. In a preliminary clinical study, taking cassia cinnamon 1, 3, or 6 grams/day for 40 days lowered fasting serum glucose by 18% to 29%, triglycerides by 23% to 30%, low-density lipoprotein (LDL) cholesterol by 7% to 27%, and total cholesterol by 12% to 26% (11347). However, additional clinical research showed no benefit. In another clinical study, post-menopausal women taking cassia cinnamon 500 mg three times daily did not have reduced fasting blood glucose, hemoglobin A1c (HbA1c), cholesterol, or triglycerides after 6 weeks of treatment (14344). An analysis of cassia cinnamon studies shows that taking cassia cinnamon does not significantly reduce fasting blood glucose, HbA1c, or lipid levels in patients with type 1 or type 2 diabetes (16010).

There is insufficient reliable information available about the effectiveness of cassia cinnamon for its other uses.

Mechanism of Action:

The applicable parts of cassia cinnamon are the bark and flower. Cinnamaldehyde is found in the volatile oil fraction of cassia cinnamon. The volatile oil from cassia cinnamon bark contains about 67% to 83% cinnamaldehyde (15301). Cinnamaldehyde seems to have antibacterial activity (11244). It may also have immunomodulating, anti-tumor, and antioxidant activity (11245, 11246, 11247).

Polyphenolic polymers such as hydroxychalcone found in cassia cinnamon seem to potentiate insulin action. These compounds seem to increase phosphorylation of the insulin receptor, which increases insulin sensitivity. Increased insulin sensitivity may improve blood glucose control and lipid levels. Cinnamon extracts also seem to activate glycogen synthetase and increase glucose uptake (11247, 11248, 11249, 11973).

Research in animal models suggests that cassia cinnamon stimulates a baseline insulin release, but does not seem to lower baseline glucose levels; however, during a glucose tolerance test, cassia cinnamon seems to stimulate insulin release and also significantly lowers blood glucose. Cassia cinnamon does not seem to lower blood glucose levels as much as the prescription drug glibenclamide. Cassia cinnamon (*Cinnamomum cassia*) does seem to have a greater insulin-stimulating effect than cinnamon bark (*Cinnamomum zeylanicum*) (13238).

Cassia cinnamon contains a wide range of coumarin concentrations from 0.004% to 1.2% (15299, 15300, 15301). Cassia cinnamon contains higher concentrations of coumarin compared to cinnamon bark (*Cinnamomum zeylanicum*). The presence of coumarin and other compounds can be used to distinguish cassia cinnamon from *Cinnamomum zeylanicum* (15300).

Adverse Reactions:

Orally, cassia cinnamon appears to be well-tolerated. No significant side effects have been reported in clinical trials (11347, 14344).

There is some concern about the safety of ingesting large amounts of cassia cinnamon due to its coumarin content. Coumarin can cause hepatotoxicity in animal models (15299). In humans, very high doses of coumarin from 50-7000 mg/day can result in hepatotoxicity that resolves when coumarin is discontinued (15302). In most cases, ingestion of cassia cinnamon won't provide a high enough amount of coumarin to cause significant toxicity; however, in especially sensitive people, such as those with liver disease, prolonged ingestion of large amounts of cassia cinnamon might exacerbate the condition.

Topically, allergic skin reactions and stomatitis from toothpaste flavored with cassia cinnamon have been reported (11915, 11920).

Interactions with Herbs & Supplements:

HEPATOTOXIC HERBS AND SUPPLEMENTS: There is some concern that ingesting large amounts of cassia cinnamon might cause hepatotoxicity in some

people. Cassia cinnamon contains coumarin which can cause hepatotoxicity in animal models (15299). In humans, very high doses of coumarin, from 50-7000 mg/day, can result in hepatotoxicity that resolves when coumarin is discontinued (15302). Lower amounts might also cause liver problem in susceptible people such as those with pre-existing liver disease. Theoretically, concomitant use with other potentially hepatotoxic products might increase the risk of developing liver damage. Some of these products include androstenedione, chaparral, comfrey, DHEA, germander, kava, niacin, pennyroyal oil, red yeast, and others.

HERBS AND SUPPLEMENTS WITH HYPOGLYCEMIC POTENTIAL:

Cassia cinnamon might lower blood glucose levels (11347). Theoretically, it might have additive effects when used with other herbs and supplements that also lower glucose levels. This might increase the risk of hypoglycemia in some patients. Some herbs and supplements with hypoglycemic effects include alpha-lipoic acid, bitter melon, chromium, devil's claw, fenugreek, garlic, guar gum, horse chestnut, Panax ginseng, psyllium, Siberian ginseng, and others.

Interactions with Drugs:

ANTIDIABETES DRUGS

Interaction Rating = **Moderate** Be cautious with this combination
Severity = Moderate • Occurrence = Possible • Level of Evidence = B

Cassia cinnamon may lower blood glucose levels, and have additive effects in patients treated with antidiabetic agents; use with caution (11347). Dose adjustments to diabetes medications might be necessary. Some antidiabetes drugs include glimepiride (Amaryl), glyburide (DiaBeta, Glynase PresTab, Micronase), insulin, metformin (Glucophage), pioglitazone (Actos), rosiglitazone (Avandia), and others.

HEPATOTOXIC DRUGS

Interaction Rating = **Moderate** Be cautious with this combination
Severity = High • Occurrence = Possible • Level of Evidence = D

There is some concern that ingesting large amounts of cassia cinnamon might cause hepatotoxicity in some people. Cassia cinnamon contains coumarin which can cause hepatotoxicity in animal models (15299). In humans, very high doses of coumarin from 50-7000 mg/day can result in hepatotoxicity that resolves when coumarin is discontinued (15302). Lower amounts might also cause liver problems in susceptible people, such as those with pre-existing liver disease. Theoretically, concomitant use with other potentially hepatotoxic drugs might increase the risk of developing liver damage. Some of these drugs include acarbose (Precose, Prandase), amiodarone (Cordarone), atorvastatin (Lipitor), azathioprine (Imuran), carbamazepine (Tegretol), cerivastatin (Baycol), diclofenac (Voltaren), felbamate (Felbatol), fenofibrate (Tricor), fluvastatin (Lescol), gemfibrozil (Lopid), isoniazid, itraconazole, (Sporanox), ketoconazole (Nizoral), leflunomide (Arava), lovastatin (Mevacor), methotrexate (Rheumatrex), nevirapine (Viramune), niacin, nitrofurantoin (Macrochantin), pioglitazone (Actos), pravastatin (Pravachol), pyrazinamide, rifampin (Rifadin), ritonavir (Norvir), rosiglitazone (Avandia), simvastatin (Zocor), tacrine (Cognex), tamoxifen, terbinafine (Lamisil), valproic acid, and zileuton (Zyflo).

Interactions with Foods:

None known.

Interactions with Lab Tests:

BLOOD GLUCOSE: Cassia cinnamon might lower blood glucose levels and test results in some patients (11347).

LIVER FUNCTION TESTS: There is some concern that ingesting large amounts of cassia cinnamon might increase liver enzymes and cause hepatotoxicity in some people. Cassia cinnamon contains coumarin which can cause hepatotoxicity in animal models (15299). In humans, very high doses of coumarin from 50-7000 mg/day can result in hepatotoxicity that resolves when coumarin is discontinued (15302). Lower amounts might also cause liver problem in susceptible people such as those with pre-existing

liver disease.

Interactions with Diseases or Conditions:

DIABETES: Cassia cinnamon might lower blood glucose in patients with type 2 diabetes (11347). Tell patients with diabetes to use cassia cinnamon products cautiously and monitor blood glucose levels very closely. Dose adjustments to diabetes medications might be necessary.

LIVER DISEASE: There is some concern that ingesting large amounts of cassia cinnamon might cause hepatotoxicity in susceptible people. Cassia cinnamon contains coumarin which can cause hepatotoxicity in animal models (15299). In otherwise healthy humans, very high doses of coumarin from 50-7000 mg/day can result in hepatotoxicity that resolves when coumarin is discontinued (15302). Lower amounts cassia cinnamon might exacerbate liver function in people with existing liver disease.

SURGERY: Cassia cinnamon might affect blood glucose levels. Theoretically, cassia cinnamon might interfere with blood glucose control during and after surgical procedures. Tell patients to discontinue cassia cinnamon at least 2 weeks before elective surgical procedures.

Dosage/Administration:

ORAL: For type 1 or type 2 diabetes, 1 to 6 grams (1 teaspoon = 4.75 grams) of cassia cinnamon daily for 40 days have been used (11347, 14344, 16010).

Editor's Comments:

There are a lot of different types of cinnamon. *Cinnamomum verum* (Ceylon cinnamon) is the type used most commonly in the Western world. *Cinnamomum aromaticum* (Cassia cinnamon or Chinese cinnamon) is also commonly used. In many cases, the cinnamon spice purchased in food stores contains a combination of these different types of cinnamon. So far, only cassia cinnamon has been shown to have any effect on blood glucose in humans. However, *Cinnamomum verum* also contains the hydroxychalcone polymer thought to be responsible for lowering blood sugar (11247).

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