



Black Pepper

SCIENTIFIC NAME
Piper nigrum

FAMILY
Piperaceae

CAUTION: Black pepper should not be confused with **White Pepper**, which comes from the same species but is prepared from a different part of the plant.

^ Other Common Names

Black Peppercorn, Extrait de Poivre, Grain de Poivre, Hu Jiao, Kali Mirchi, Kosho, Marich, Maricha, Miris, Peber, Peper, Pepe, Peppar, Pepper, Pepper Extract, Peppercorn, Pfeffer, Pimenta, Pimienta, Pimienta Negra, Pipar, Piper, Piperine, Pippuri, Poivre, Poivre Noir, Poivrier, Vellaja.

Overview

Black pepper is the dried, full grown, unripe fruit of *Piper nigrum* (11). It is native to India and other tropical Asian countries and is one of the most commonly used spices worldwide (29995). Black pepper and white pepper are both prepared from the same species, *Piper nigrum*. However, black pepper is made by cooking the dried, unripe fruit, while white pepper is prepared by cooking and drying the ripe seeds (29995).

Safety

LIKELY SAFE ...when used orally in amounts commonly found in foods. Black pepper has Generally Recognized as Safe (GRAS) status in the US (4912).

POSSIBLY SAFE ...when black pepper oil is applied topically. Black pepper oil is nonirritating to the skin and is generally well tolerated (11). ...when black pepper oil is inhaled through the nose or as a vapor through the mouth, short-term. Black pepper oil as a vapor or as an olfactory stimulant has been used with apparent safety in clinical studies for up to 3 days and 30 days, respectively (29159,29160,29161,90502).

There is insufficient reliable information available about the safety of black pepper when used orally in medicinal amounts.

CHILDREN: **LIKELY SAFE** ...when used orally in amounts commonly found in foods (11). **POSSIBLY UNSAFE** ...when used orally in large amounts. Fatal cases of pepper aspiration have been reported in some patients (5619,5620). There is insufficient reliable information available about the safety of topical pepper oil when used in children.

PREGNANCY: **LIKELY SAFE** ...when used orally in amounts commonly found in foods (11). **LIKELY UNSAFE** ...when used orally in large amounts. Black pepper might have abortifacient effects (11,19); contraindicated. There is insufficient reliable information available about the safety of topical pepper when used during pregnancy.

LACTATION: **LIKELY SAFE** ...when used orally in amounts commonly found in foods (11). There is insufficient reliable information available about the safety of black pepper when used in medicinal amounts during breast-feeding.

^ Adverse Effects

General: Orally, black pepper seems to be well tolerated when used in the amounts found in food or when taken as a medicine as a single dose. Topically and as aromatherapy, black pepper oil seems to be well tolerated.

Most Common Adverse Effects:

Orally: Burning aftertaste, dyspepsia, and reduced taste perception.

Inhalation: Cough.

Serious Adverse Effects (Rare):

Orally: Allergic reaction in sensitive individuals.

^ Gastrointestinal

Orally, black pepper can cause a burning aftertaste (5619) and dyspepsia (38061). Single and repeated application of piperine, the active constituent in black pepper, to the tongue and oral cavity can decrease taste perception (29267). By intragastric route, black pepper 1.5 grams has been reported to cause gastrointestinal microbleeds (29164). It is not clear if such an effect would occur with oral administration.

^ Immunologic

In one case report, a 17-month-old male developed hives, red eyes, facial swelling, and a severe cough following consumption of a sauce containing multiple ingredients. Allergen skin tests were positive to both black pepper and cayenne, which were found in the sauce (93947).

^ Ocular/Otic

Topically, ground black pepper can cause redness of the eyes and swelling of the eyelids (5619).

^ Pulmonary/Respiratory

When inhaled through the nose as an olfactory stimulant, black pepper oil has been reported to cause cough in one clinical trial (29162).

^ Effectiveness

INSUFFICIENT RELIABLE EVIDENCE to RATE

Allergic rhinitis (hay fever). Although there has been interest in using oral black pepper for allergic rhinitis, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Asthma. Although there has been interest in using oral black pepper for asthma, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Athletic performance. Oral black pepper has only been evaluated in combination with other ingredients; its effect when used alone is unclear.

^ **Details:** One small clinical trial in untrained males shows that taking a supplement containing black pepper extract 10 mg, caffeine 400 mg, capsicum extract 66.7 mg, and niacin 40 mg as a single dose prior to exercise does not improve strength, time to exhaustion, or maximal oxygen consumption when compared with placebo (37873).

Depression. Although there has been interest in using oral black pepper for depression, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Diarrhea. Although there has been interest in using oral black pepper for diarrhea, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Dysmenorrhea. Although there has been interest in using oral black pepper for dysmenorrhea, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Dyspepsia. Although there has been interest in using oral black pepper for dyspepsia, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Fall prevention. It is unclear if inhaling black pepper oil as aromatherapy is beneficial for fall prevention in older adults.

^ **Details:** One small clinical study in older adults shows that applying black pepper oil near the right side of the nose as an olfactory stimulant improves stability while the eyes are closed during a one-minute trial when compared with the application of water. The improvement with black pepper oil is comparable to the improvement seen with the application of lavender oil (29160). It is unclear if any benefit persists after inhalation of black pepper oil.

Fatigue. It is unclear if oral black pepper is beneficial in patients with fatigue.

^ **Details:** One small clinical trial in adults with below-average energy levels shows that taking black pepper 2 grams as a single dose does not improve sustained attention, motivation to perform cognitive tasks, or feelings of mental energy and mental fatigue when compared with placebo (91731).

Flatulence. Although there has been interest in using oral black pepper for flatulence, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Headache. Although there has been interest in using oral black pepper for headache, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Insect bite. Topical black pepper has only been evaluated in combination with other ingredients; its effect when used alone is unclear.

^ **Details:** One small clinical trial shows that applying a specific product (Trikatu) containing black pepper, long pepper, and ginger, as well as camphor, eucalyptus oil, and menthol, directly to mosquito bites does not reduce papule size, erythema, edema, or pruritis when compared with a control compound containing the same base ingredients but without the pepper and ginger components (89893).

Obesity. Although there has been interest in using oral black pepper for obesity, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Pain (chronic). Although there has been interest in using topical black pepper for chronic pain related to various etiologies, including osteoarthritis, postherpetic neuralgia, and peripheral neuropathy, there is insufficient reliable information about the clinical effects of black pepper for these conditions.

Rhinosinusitis. Although there has been interest in using oral black pepper for rhinosinusitis, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Sexual desire. Although there has been interest in using oral black pepper for increasing sexual desire, there is insufficient reliable information about the clinical effects of black pepper for this purpose.

Smoking cessation. It is unclear if inhaling black pepper essential oil as aromatherapy is effective for smoking cessation.

^ **Details:** One small clinical trial in adult male smokers who were deprived from smoking overnight shows that inhaling a vapor from the essential oil of black pepper, as needed over a 3-hour period, reduces cigarette cravings, negative feelings, and anxiety when compared with a placebo vapor (29159). Another small clinical study in patients addicted to dipping, chewing, or smoking tobacco shows that placing a drop of black pepper essential oil on tissue paper and inhaling for 2 minutes at least three times a day for 3 days reduces nicotine cravings when compared to baseline (90502).

Swallowing dysfunction. It is unclear if inhaling black pepper oil as aromatherapy is beneficial in patients with swallowing dysfunction.

^ **Details:** One small clinical study in post-stroke residents of nursing homes shows that one minute of olfactory stimulation with black pepper oil before each meal for 30 days decreases swallowing reflex latency by 11 seconds and increases the number of swallowing movements by 3.3 when compared to baseline (29161). A small clinical trial in children with neurological disorders who were on long-term enteral nutrition shows that applying black pepper oil to the nostrils or nasal cavity for one minute improves the amount of oral intake and swallowing movement in 63% of patients. Although oral intake increased, the need for enteral nutrition was not eliminated (29162).

Vitiligo. It is unclear if topical piperine oil, a constituent of black pepper, is beneficial in patients with vitiligo.

^ **Details:** A small clinical study in patients with vitiligo shows that applying piperine oil 1% daily in addition to receiving narrowband ultraviolet B (NB-UVB) light therapy every other day for 3 months improves repigmentation more rapidly when compared with using NB-UVB alone (103820).

More evidence is needed to rate black pepper for these uses.

Dosing & Administration

- **Adult**

Inhalation:

Black pepper essential oil is most often inhaled for 1-2 minutes at a time. See [Effectiveness](#) section for condition-specific information.

Topical:

Research is limited; typical dosing is unavailable.

- **Children**

Inhalation:

Research is limited typical dosing is unavailable.

- **Standardization & Formulation**

Black pepper is an ingredient in a traditional preparation (Trikatu) used in Ayurvedic and Thai medicine. Trikatu is available in oral and topical formulations and contains black pepper, long pepper, and ginger. In one clinical study, an ethanolic extract of Trikatu was standardized to contain piperine 0.074% and gingerol 0.046%. This extract was incorporated into a final topical preparation containing Trikatu 1%, camphor 2%, menthol 2%, and eucalyptus oil 4% (89893).

Interactions with Drugs

AMOXICILLIN (Amoxil, Trimox)

Interaction Rating = **Minor** Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase the effects and side effects of amoxicillin.

^ **Details**

Animal research shows that taking piperine, a constituent of black pepper, with amoxicillin increases plasma levels of amoxicillin (29269). This has not been reported in humans.

ANTICOAGULANT/ANTIPLATELET DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase the risk of bleeding when taken with antiplatelet or anticoagulant drugs.

^ **Details**

In vitro research shows that piperine, a constituent of black pepper, seems to inhibit platelet aggregation (29206). This has not been reported in humans.

ANTIDIABETES DRUGS

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase the risk of hypoglycemia when taken with antidiabetes drugs.

^ **Details**

Animal research shows that piperine, a constituent of black pepper, can reduce blood glucose levels (29225). Monitor blood glucose levels closely. Dose adjustments might be necessary.

ATORVASTATIN (Lipitor)

Interaction Rating = **Moderate** Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase blood levels of atorvastatin.

^ **Details**

Animal research shows that taking piperine, a constituent of black pepper, 35 mg/kg can increase the maximum serum concentration of atorvastatin three-fold (104188). This has not been reported in humans.

CARBAMAZEPINE (Tegretol)

Interaction Rating = **Minor** Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = B

Theoretically, black pepper might increase blood levels of carbamazepine, potentially increasing the effects and side effects of carbamazepine.

[^ Details](#)

One clinical study in patients taking carbamazepine 300 mg or 500 mg twice daily shows that taking a single 20 mg dose of purified piperine, a constituent of black pepper, increases carbamazepine levels. Piperine may increase carbamazepine absorption by increasing blood flow to the GI tract, increasing the surface area of the small intestine, or inhibiting cytochrome P450 3A4 (CYP3A4) in the gut wall. Absorption was significantly increased by 7-10 mcg/mL/hour. The time to eliminate carbamazepine was also increased by 4-8 hours. Although carbamazepine levels were increased, this did not appear to increase side effects (16833). In vitro research also shows that piperine can increase carbamazepine levels by 11% in a time-dependent manner (103819).

CYCLOSPORINE (Neoral, Sandimmune)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase the effects and side effects of cyclosporine.

[^ Details](#)

In vitro research shows that piperine, a constituent of black pepper, increases the bioavailability of cyclosporine (29282). This has not been reported in humans.

CYTOCHROME P450 1A1 (CYP1A1) SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase levels of drugs metabolized by CYP1A1.

[^ Details](#)

In vitro research suggests that piperine, a constituent of black pepper, inhibits CYP1A1 (29213). This has not been reported in humans.

CYTOCHROME P450 2B1 (CYP2B1) SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase levels of drugs metabolized by CYP2B1.

[^ Details](#)

In vitro research suggests that piperine, a constituent of black pepper, inhibits CYP2B1 (29332). This has not been reported in humans.

CYTOCHROME P450 2D6 (CYP2D6) SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase levels of drugs metabolized by CYP2D6.

[^ Details](#)

In vitro research suggests that some constituents of black pepper inhibit CYP2D6 (29207,29212,38375). This has not been reported in humans.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase levels of drugs metabolized by CYP3A4.

[^ Details](#)

In vitro research shows that piperine, a constituent of black pepper, as well as the pepper fruit seem to inhibit CYP3A4 (14375,29212). This has not been reported in humans.

LITHIUM

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Probable • **Level of Evidence** = D

Theoretically, black pepper might increase blood levels of lithium due to its diuretic effects. The dose of lithium might need to be reduced.

[^ Details](#)

Black pepper is thought to have diuretic properties (11).

NEVIRAPINE (Viramune)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • **Occurrence** = Probable • **Level of Evidence** = D

Black pepper might increase blood levels of nevirapine.

[^ Details](#)

Clinical research shows that piperine, a constituent of black pepper, increases the plasma concentration of nevirapine. However, no adverse effects were observed in this study (29209).

P-GLYCOPROTEIN SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase levels of P-glycoprotein substrates.

[^ Details](#)

In vitro research shows that piperine, a constituent of black pepper, seems to inhibit P-glycoprotein (14375,29281,29283).

PENTOBARBITAL (Nembutal)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, black pepper might increase the sedative effects of pentobarbital.

[^ Details](#)

Animal research shows that piperine, a constituent of black pepper, increases pentobarbital-induced sleeping time (29214).

PHENYTOIN (Dilantin)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • **Occurrence** = Possible • **Level of Evidence** = B

Black pepper might increase blood levels of phenytoin.

[^ Details](#)

Clinical research shows that piperine, a constituent of black pepper, seems to increase absorption, slow elimination, and increase levels of phenytoin (537,14442). Taking a single dose of black pepper 1 gram along with phenytoin seems to double the serum concentration of phenytoin (14375). Consuming a soup with black pepper providing piperine 44 mg/200 mL of soup along with phenytoin also seems to increase phenytoin levels when compared with consuming the same soup without black pepper (14442).

PROPRANOLOL (Inderal)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = B

Black pepper might increase blood levels of propranolol.

[^ Details](#)

Clinical research shows that piperine, a constituent of black pepper, seems to increase absorption and slow elimination of propranolol (538).

RIFAMPIN (Rifadin)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • **Occurrence** = Possible • **Level of Evidence** = B

Black pepper might increase blood levels of rifampin.

[^ Details](#)

Clinical research shows that piperine, a constituent of black pepper, seems to increase absorption and serum levels of rifampin (14375,29284).

THEOPHYLLINE

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • **Occurrence** = Possible • **Level of Evidence** = D

Black pepper might increase blood levels of theophylline.

[^ Details](#)

Clinical research shows that piperine, a constituent of black pepper, seems to increase absorption and slow elimination of theophylline (538).

Interactions with Supplements

ANTICOAGULANT/ANTIPLATELET HERBS AND SUPPLEMENTS: Theoretically, black pepper might have antiplatelet effects.

[^ Details](#)

Taking black pepper with other products that increase the risk of bleeding might have additive effects. In vitro research shows that piperine, a constituent of black pepper, seems to inhibit platelet aggregation (29206). See products with anticoagulant activity [here](#). See products with antiplatelet activity [here](#).

HERBS AND SUPPLEMENTS WITH HYPOGLYCEMIC POTENTIAL: Theoretically, black pepper might have hypoglycemic effects.

[^ Details](#)

Taking black pepper with other products with hypoglycemic potential might increase the risk of hypoglycemia. Animal research suggests that piperine, a constituent of black pepper, can reduce blood glucose levels (29225). See other products with hypoglycemic potential [here](#).

RHODIOLA: Theoretically, black pepper might reduce the activity of rhodiola.

[^ Details](#)

Animal research suggests that taking piperine, a constituent of black pepper, with rhodiola extract reduces the activity of the rhodiola extract (71176).

Interactions with Conditions

BLEEDING CONDITIONS

Theoretically, black pepper might have antiplatelet effects, potentially increasing the risk of bleeding. Until more is known, medicinal amounts of black pepper should be used with caution in patients with bleeding disorders. In vitro research shows that piperine inhibits platelet aggregation (29206).

PERIOPERATIVE

Piperine, a constituent of black pepper, has antiplatelet (29206) and hypoglycemic (29225) effects, which might cause excessive bleeding or interfere with blood glucose control if used perioperatively. Tell patients to discontinue using black pepper in medicinal amounts at least 2 weeks before elective surgical procedures.

Interactions with Lab Tests

None known.

Overdose

Presentation

Deaths due to aspiration from consuming large amounts of black pepper have been reported ([5619,5620](#)). In most cases, the deceased were children who were punished by having to consume large amounts of black pepper ([5619](#)). In another case, a child with a history of pica accidentally overdosed on black pepper. In this case, the child aspirated black pepper, leading to respiratory arrest, anoxia, and death ([5620](#)).

Treatment

There is insufficient reliable information available about the treatment of overdose with black pepper.

Commercial Products Containing: Black Pepper

[View All](#)

[View Health Canada Licensed Products](#)



[View Certified Products](#)



[USP Verified Products](#)



[NSF Contents Certified Products](#)



[NSF Certified for Sport Products](#)



[ConsumerLab Quality Certified Products](#)

Pharmacokinetics

There is insufficient reliable information available about the pharmacokinetics of black pepper.

Mechanism of Action

General: The applicable part of black pepper is the fruit, which contains 5% to 9% piperine. A typical North American diet provides about 360 mg of black pepper daily, which would provide about 60-110 micromole of piperine ([14375](#)). Other constituents include chavicine, piperamine, piperidine, and other piperamides ([29305,89893](#)). Black pepper oil is distilled from black pepper ([11](#)).

Antibacterial effects: Black pepper is said to have antimicrobial effects ([18](#)). In laboratory research, black pepper extract and volatile oils had antibacterial effects against various bacteria ([2130,33826](#)). Piperine might play a role in the antibacterial effects of black pepper, possibly by acting as an efflux pump inhibitor ([29173](#)). However, black pepper extract does not appear to have antibacterial effects against *Helicobacter pylori* isolates ([36131](#)).

Antidiabetic effects: In laboratory research, black pepper extracts inhibit enzymatic or non-enzymatic diabetic complications, such as protein glycation ([30646,46887,46888](#)). Piperine, a constituent of black pepper, has been shown to reduce blood sugar levels in animal diabetic models ([29225](#)).

Antifungal effects: Black pepper is said to have antimicrobial effects ([18](#)). Laboratory research suggests that black pepper essential oil and constituents have antifungal effects ([29270,46242](#)). Black pepper essential oil might also protect against the production of aflatoxin, a toxin created by certain fungi, and inhibit aflatoxin toxicity ([39902,43630](#)). It is possible that the constituent piperine inhibits aflatoxin B1-induced cytotoxicity by inhibiting some cytochrome P450 metabolic effects ([29332,29333](#)).

Antioxidant effects: Some of the pharmacological or clinical effects of black pepper may be due to antioxidant effects of black pepper constituents. Antioxidant effects of black pepper, as well as its essential oils and oleoresins, have been demonstrated in vitro and in animal models. It is likely that various constituents play a role ([29180,29303,29306,29335,29336,31454](#)).

Antiparasitic effects: Black pepper is thought to have antiparasitic effects. In laboratory research, essential oil of black pepper had antiparasitic effects against red mite ([39811](#)) but did not reduce the viability of *Toxoplasma gondii* in experimentally infected pork ([29205](#)). The constituent piperine might play a role in these possible effects ([29201,29202,29203,29204](#)).

Cancer effects: Some evidence suggests that black pepper might protect against colon cancer and other tumors ([3761,29276](#)). Piperine has been shown to have anti-cancer effects in laboratory research ([29319,29320,29321](#)). Potential mechanisms of action include altered activity of cytochrome P450 enzymes and other detoxification enzymes, as well as reduced oxidative effects ([29310,29311,29312,29325](#)).

However, other evidence suggests black pepper might cause liver tumors ([3759](#)). Black pepper contains at least four constituents that have shown carcinogenic or mutagenic effects in laboratory research ([29167,29235,29259](#)).

Cognitive effects: Black pepper is sometimes used to increase mental energy and improve cognitive effects. In animal research some evidence suggests that the constituent piperine improves learning and memory. However, in clinical research, a single dose of black pepper did not improve mental energy or mental fatigue ([91731](#)).

Dermatological effects: Black pepper is commonly taken for vitiligo, a skin condition resulting in discoloration. In laboratory research, both black pepper extract and piperine have been shown to stimulate the proliferation of melanocytes, which induces pigmentation ([29295,29345,29346](#)). There is also interest in the effects of black pepper oil when applied to the skin. In vitro

research suggests that black pepper essential oil inhibits growth of skin cancer cells and also promotes tissue remodeling and wound healing (103817).

There is also interest in using black pepper oil to improve vein accessibility while obtaining intravenous access due to its anecdotal warming and stimulating properties. In a small clinical study, applying 20% black pepper essential oil mixed with aloe vera gel topically to the vein improves both vein visibility and palpability, resulting in more accurate intravenous catheter placement when compared with standard procedures (103818).

Diuretic effects: Black pepper is said to have diuretic properties (11).

Drug absorption effects: Piperine, a constituent of black pepper, seems to increase oral absorption of drugs and other substances by forming a complex with them (3757).

Gastrointestinal effects: Black pepper is said to have anti-flatulent effects (11). It is also thought to stimulate thermal receptors, induce sweating, and stimulate taste buds, causing an increase in gastric secretions (18). Piperine might be responsible for the increased gastric acid secretion seen in animal research, possibly by stimulating histamine or vanilloid receptors (29158,29358,39864). In human research, black pepper 1.5 grams reduces gastrointestinal transit time (29210). This may be due to the inhibition of intestinal contractions by the constituent piperine (29350,29351,29352,29353).

Hepatic effects: Black pepper is thought to influence liver and metabolic function (11). Some evidence suggests that black pepper might induce hepatic enzymes (3760) and cause liver toxicity (29227) and tumors (3759). However, other research suggests that the black pepper constituent piperine might have hepatoprotective effects (29197,29198).

Insecticidal effects: Black pepper is said to have insecticidal effects (18). In laboratory research, black pepper essential oil has been shown to be effective against pulse beetles, cockroaches, weevils, and various types of mosquitos (29374,29375,36189,47786,47787,80173). This activity may be attributed to piperidine, piperine, piperohyline, piperyhyline, and others (29196,29373,29376).

Weight loss effects: Black pepper is said to influence metabolic function (11). It might also have lipolytic activity related to the outer layer of the fruit (11). In clinical research, taking a specific product (Medestea Biotech S.p.a.) containing capsicum oleoresin, decaffeinated green tea extract, black pepper extract, garlic extract, Fucus vesiculosus extract, mint essential oil, and L-carnitine modestly improves satiety, but not energy expenditure (90629). Also, adding black pepper to a meal had no effect on diet-induced thermogenesis, energy intake following the meal, or appetite (93948).

Classifications

Antiplatelet Agents, Cytochrome P450 1A1 (CYP1A1) Inhibitors, Cytochrome P450 2D6 (CYP2D6) Inhibitors, Cytochrome P450 3A4 (CYP3A4) Inhibitors, Diuretics, Hypoglycemic Agents, Immunomodulators, Monoamine Oxidase Inhibitors (MAOIs), P-Glycoprotein Inhibitors, Salicylate-Containing Herbs & Supplements

References

[See Monograph References](#)

Monographs are reviewed on a regular schedule. See our [Editorial Principles and Process](#) for details. The literature evaluated in this monograph is current through 10/3/2024. This monograph was last modified on 6/27/2023. If you have comments or suggestions, please [tell the editors](#).

