

Christmas spices

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With the festive season well upon us, the smell of traditional Christmas cooking is in the air. Spices traditionally associated with mouth-watering Christmas treats are not only a hit with the taste buds but also confer various health benefits.

Spices are one of the earliest recorded functional foods ([1]). Here we will uncover the health-boosting properties of six popular festive spices.

Ginger (*Zingiber officinale*)

- A popular flowering plant whose rhizome (“ginger root” or ginger) is widely used as a culinary spice and in folk medicine ([2]).
- The beneficial effects of ginger date as far back as the 13th century ([3]).
- Contains over 400 bioactive components ([2]).
- Experimental and clinical trials support the traditional view that ginger has analgesic (pain relieving), anti-diabetic ([4],[5]), anti-obesity ([6],[7]), nausea and vomiting reducing (particularly relating to surgery, chemotherapy and pregnancy) ([8],[9],[10]), anti-inflammatory ([11],[12]), antimicrobial and antioxidant properties ([2],[13],[14]).
- Possesses the potential to prevent cardiovascular disease, arthritis, gastric dysfunction, respiratory disorders and neurodegenerative diseases such as Alzheimer’s disease, Parkinson’s disease and multiple sclerosis ([15],[16],[17]).

Nutmeg (*Myristica fragrans* Houtt.)

- An evergreen tree native to the Maluku Islands, Indonesia ([18]).

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- Widely used as a traditional seasoning and has a therapeutic effect on gastrointestinal diseases ([19]). In addition to flavouring foods and beverages, nutmeg has been used in traditional remedies for stomach and kidney disorders ([18],[20]).
- Nutmeg is a rich source of fixed and essential oil, triterpenes, and various phenolic compounds ([20]).
- Numerous active ingredients have been reported to have various effects, such as anti-inflammatory, antioxidant, antimicrobial, hepatoprotective, anti-obesity, anti-diabetic and cardioprotective ([21],[22],[25]).
- Preclinical results show that nutmeg extract is a prebiotic that regulates gut microbes and metabolites and can reduce inflammation and lipid metabolism disorders in non-alcoholic fatty liver disease (NAFLD) ([19],[26]).

Cinnamon (*Cinnamomum*)

- A spice derived from the inner skin of a tropical evergreen tree, cinnamon is one of the most common flavourings in the food industry around the world ([27]).
- Medicinal and culinary uses are well reported in ancient literature going back 4,000 years ([28]).
- *C. verum* (true cinnamon) and *C. cassia* are commonly used for culinary purposes ([29]), while *C. zeylanicum* and *C. cassia* are approved for herbal use.
- The main components found in cinnamon (cinnamaldehyde, cinnamic acid, eugenol, and coumarin) play key roles in different biological activities such as antimicrobial, anti-inflammatory, antioxidant, antifungal, and anti-diabetic activities ([27]).
- *C. cassia* has a wide range of pharmacological activities such as anti-inflammatory, antibacterial, antiviral, antioxidant, antitumour, improving glucose and lipid metabolism, neuroprotective, cardiovascular protective, analgesic, immunoregulatory and anti-diabetic ([29],[30],[31],[32],[33],[34]).
- Compounds found in *C. verum* essential oil exhibit various pharmacological activities, including antioxidant, antimicrobial, anti-inflammatory, anticancer, anti-diabetic, wound healing, anti-HIV, anti-anxiety and antidepressant ([28]).

Clove (*Syzygium aromaticum* L.)

- A highly prized spice native to the Maluku Islands, Indonesia, that has been historically used as a food preservative and for diverse medical uses ([35]).
- Its dried flower buds, referred to as “clove”, are highly sought-after for medicinal and culinary purposes. Clove has been used as a spice in ancient China for over 2,000 years ([1],[36]).
- The buds contain a variety of vitamins, with high levels of vitamins A, B₃, and B₆ ([1]).
- Bioactive components, especially eugenol, have antioxidant, anti-inflammatory, antimicrobial, anti-diabetic, anticancer and cognitive enhancement properties ([35],[36],[37],[38]).
- Used to treat toothache, gum inflammation, coughs, colds, neuralgic pain and type 2 diabetes ([1],[37]).

Allspice (*Pimenta dioica*)

- The dried unripe berries of *dioica*, a Caribbean tropical tree, are called Allspice ([39]).
- The name “Allspice” was given by the British due to its strong aromatic flavour that resembles the combined aromas of cloves, pepper, cinnamon and nutmeg ([39]).
- Jamaicans drink hot tea with Allspice for colds, dysmenorrhea (menstrual cramps) and dyspepsia (upset stomach) ([39]).
- In modern herbal medicine, Allspice extract has been used for neuropathic pain. Many of its aromatic compounds, mostly glycosides and polyphenols, show antibacterial, hypotensive, anti-neuralgic and analgesic properties ([39]).
- Allspice contains the common polyphenol eugenol, which is known to stimulate digestive enzymes and is used for treating indigestion. Eugenol also has analgesic effects in neuralgia; dentists often use it as an anaesthetic ([39]).

Cardamom (*Elettaria cardamomum*)

- Known as the “queen of spice”, cardamom has been used for centuries for culinary and traditional medicine applications, including controlling asthma, teeth and gum infections, digestive and kidney disorders, cataracts, nausea, diarrhoea and cardiac disorders ([40]).
- Research findings indicate potential health-promoting properties of cardamom phytochemicals, including antioxidant, anti-inflammatory, anti-diabetic, antifungal, antiviral, lipid-modifying, anti-platelet aggregation, anti-hypertensive, and gastro-protective effects ([40],[41],[42],[43]).

Cooking with Christmas spices

- Ginger** ([44])
- Add raw ginger to stir-fries or curries; use in marinades; grate to make tea.
 - Dried ginger works well in puddings, pancakes and fruit cakes or stewed fruits, particularly apple.
- Nutmeg** ([45])
- Nutmeg’s full flavour spectrum is best experienced when grated freshly onto something hot rather than being cooked.
 - Nutmeg has a great affinity with rum and thus used in cocktails as well as in cooking. It’s great with chocolate, too.
 - Nutmeg is a vital member of any mixed spice but especially good combined with cinnamon, creating a welcoming, warming aroma. It also has a special affinity with cardamom; both are great on hot coffee and in or on coffee cake.
- Cinnamon** ([46])
- This fragrant spice adds a warm flavour to sweet and savoury dishes.
 - Ground in cakes, biscuits, and desserts.
 - Sprinkled over baked fruit and custards.
 - Add whole to casseroles, mulled wine, and punch.
 - Soak a cinnamon stick in herbal tea before drinking.
 - Add to water when boiling rice.

- Used to flavour a wide variety of sweet and savoury dishes. Cloves can be used whole or ground to impart a strong, sweet, spicy flavour.
 - It's best to grind whole cloves into powder using a pestle and mortar just prior to using them to maximise flavour and freshness.
 - Insert whole cloves into baked hams or oranges, apples or onions to add flavour, or add ground cloves to curries.
 - They can also be used to flavour syrups and baked goods such as our clove sugar cookies.
- Clove** ([47])
- Can be used in ground form or whole. Ground spices are more intense than whole cloves or berries, however, once ground, Allspice can quickly lose its pungency.
- Allspice** ([39],[48])
- Can be used to flavour desserts, side dishes, main courses, and beverages, including mulled wine and hot cider.
 - In baking, Allspice is used mostly in desserts such as pumpkin pies, banana bread spice cake, bread pudding and gingerbread.
 - Comes in two types (green and black) and is used as whole pods, seeds, or ground.
 - Green cardamom (*Elettaria cardamomom*) is known as true cardamom. This is the most common variety sold for cooking.
- Cardamom** ([49])
- Used to season everything from baked goods to hamburgers and meatloaves.
 - It matches well with cinnamon, nutmeg, and cloves.
 - Drinks from mulled wine to hot cider to eggnog will benefit from an unexpected hint of cardamom.

Conclusion

While clinical trials involve high dose formulations of the spices mentioned above for therapeutic effect, including tasty spices in your favourite meals, drinks and treats can spice up your Christmas while spicing up your overall health and well-being!

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