

Expert Herbal Reality Resource

Ginger

Names

Botanical Name *Zingiber officinale* L

Family: Zingiberaceae

Common names: Ingwer (Ger), gingembre (Fr), zenzero (Ital), jengibre (Sp), adrakh, sont (Hindi), vishwabhesaja (Sanskrit), jiang (Chin)

Alternate botanical names: *Amomum zingiber* L., *Curcuma longifolia* Wall., *Zingiber aromaticum* Noronha, *Z. blancoi* Massk., *Z. majus* Rumph., *Z. missionis* Vall., *Z. sichuanense* Z.Y. Zhu et al., *Z. zingiber* (L.) H. Karst.

Description

Ginger is the rhizome (underground stem) of a reed-like plant with sheathed leaves. It has irregularly yellow-green flowers, each having one purple "lip" with yellow spots. The rhizomes are joined in clusters and are fleshy and succulent when fresh, with pale, easily scraped skin. When dried, the rhizomes shrink considerably to become flattened pieces a few cm long with a fibrous interior. Close examination of the surface of the fresh rhizome reveals numerous yellow oil cells. The characteristic odour and taste of ginger is well known.



Constituents

- **Acrid principles** gingerols (notably (6)-gingerol) and shogaols (notable (6)-shogaol) - the gingerols decompose into the more acrid and powerful shogaols on drying and storage
- **Essential oil** (1-3%) including monoterpenes citral a and citral b (geranial and neral)
- **Sesquiterpenes** (making up 30-70% of total essential oil) including beta-sesquiphellandrene and alpha-zingiberene (both mainly in the fresh root), beta-bisabolene, and ar-curcumene

Traditional use

In ancient China where the use of ginger originated, there were three versions: *sheng jiang*, fresh raw rhizome; *gan jiang*, dried raw rhizome; and *pao jiang*, dried, quick-fried rhizome. All three were considered warming remedies with particular affinity for the bowel and lungs, although their activity in these regions varied. *Sheng jiang* was considered the most "dispersing" of the three, meaning it had a broad spectrum of influence but short-lived effects. It was used in instances of toxicity and food poisoning and to induce diaphoresis (sweating) in fevers. *Gan jiang*, in comparison, had a less intense effect but longer lasting benefits. It was better matched with patterns of lack of muscle tone, congestion, or debility, which might have manifested as cold limbs, pale complexion, or undigested food in the stool. *Pao jiang* was used in much the same way as *gan jiang*, although it was considered to be a stronger remedy and was also applied to stop bleeding. Its action was the least dispersing of the three, meaning it did more to conserve energy and was the specific choice for conditions such as recurrent nosebleeds, spitting of blood and mid-cycle uterine bleeding.

The Sanskrit name for ginger *vishwabhesaja*, translates as panacea, a universal medicine benefiting everybody and all diseases. As in Chinese medicine, ayurvedic tradition also applied the rhizome in a variety of forms (fresh, dried, peeled, and unpeeled). Again, it was used consistently for digestive complaints, including nausea, diarrhoea,

flatulence, dyspepsia (indigestion), and gastrointestinal spasm. It was also valued for chronic rheumatic complaints, venomous bites and for colds and flu.

European and early American practitioners adapted both Asian traditions in their use of ginger. They recognised its benefits for digestion and used it as an appetite stimulant and carminative (to reduce bowel gas and cramp). They specifically recommended its use in cases of spasm, pain and flatulence or for apparent sluggish digestion or bowels. General debility, nervous fatigue with exhaustion and inadequate circulation were other Western uses. For colds and flu, ginger was used to increase the flow of mucus and as a diaphoretic, to increase sweating in fevers. Early American physicians also favoured ginger as a remedy for menstrual cramps.



Traditional actions

Traditional Ayurvedic characteristics are

Rasa (taste) Pungent, sweet.

Virya (action) Heating (fresh is warm and dry is hot).

Vipaka (post-digestive effect) Sweet.

Guna (quality) Fresh – unctuous and heavy; dry – dry, light and penetrating.

Dosha effect: strengthens *pitta*, and reduces excessive *vata* and *kapha*

Dhatu (tissue) All tissues.

Srotas (channels) Digestive, respiratory, circulatory.

What practitioners say

Ginger may be usefully applied for a range of digestive, bowel and respiratory conditions. The modern practitioner can be guided by traditional wisdom and use ginger particularly when symptoms are made worse by cold and damp conditions and seem to be relieved by heat and dryness.

- **Circulation:** Ginger clears cold. The fresh plant increases peripheral circulation and causes vasodilation and sweating, traditionally seen to clear toxins (Ayurvedic *ama*) from the blood. Fresh ginger acts on the small blood vessels, causing vasodilation and sweating. Dry ginger is stronger and more thermogenic. Fresh ginger is more peripherally active while dry ginger is more centrally stimulating and warming to the constitution.
- **Digestion:** Ginger will warm and stimulate the digestive system, increasing *agni* (Ayurvedic 'digestive fire'). It is useful in nausea (morning, post-operative and travel sickness), flatulence and griping. Dry ginger, being hotter, is more of a stimulant and used for clearing the symptoms of congestive digestion. Fresh ginger is better for calming an upset or nervous digestion and will act as a laxative in constipation linked to irritable bowel. Ginger's ability to clear congestion and act as a stimulant make it a perfect choice for a weak, slow or inefficient digestion.
- **Metabolic and inflammatory:** Ginger is a good component in formulations and regimes to manage the complications of weight gain, including metabolic syndrome and pre-diabetic states.
- **Musculoskeletal:** Ginger is included in many traditional Ayurvedic formulas for joint health, such as Triphala guggul and Yograj guggul. Initially it warms and stimulates, but in the long term it encourages a healthy

inflammation response as well as supporting blood supply helping to clear congestion and reduce fluid retention in affected areas.

- **Respiratory:** Ginger clears phlegm and congestion in coughs and colds affecting the lungs and respiratory system.
- **Reproductive system:** Ginger can help relieve menstrual cramps, particularly in the form of fresh ginger tea. It is most applicable to symptoms that are relieved by hot water bottles. Ginger has a warming, anti-inflammatory action on the female reproductive system and a long-term nourishing effect as a whole. It can increase milk production in lactating mothers.ⁱ

Evidence

A review of six double-blind, randomized controlled trials with a total of 675 participants has confirmed that ginger is effective in relieving the severity of nausea and vomiting during pregnancy. The review also confirmed the absence of significant side effects or adverse effects on pregnancy outcomes.ⁱⁱ There are a number of earlier reviews demonstrating benefits for reducing nausea after operations,ⁱⁱⁱ and in motion sickness.^{iv} It also activates digestive enzymes to increase digestive performance.^v

Both the heat-generating constituents and the volatile oils in ginger are believed to explain why so many people with arthritis experience reductions in their pain levels and improvements in their mobility when they consume ginger regularly. It shows promise in reducing arthritic pain.^{vi} One study showed ginger was effective in reducing pain and swelling in arthritis, with no adverse effects during the period of ginger consumption which ranged from 3 months to 2.5 years.^{vii} It has been shown to reduce pain in excess exercise,^{viii} and its effects in relieving spasm extend to benefits for painful periods.^{ix}

It has been shown to reduce many markers of inflammatory activity,^{x,xi} especially those associated with metabolic syndrome, obesity and prediabetic conditions.^{xii} There is evidence that these effects, possibly mediated by reducing the inflammatory activity of fat cells, can translate into benefits for the control of obesity.^{xiii}

It may protect against the damage of ionising radiation.^{xiv} When used externally in the form of an oil or ointment, ginger reduces inflammation and pain.^{xv}

Safety

Ginger has been safely used as a food for many centuries, with few adverse reports in daily cuisine, clinical practice or in clinical trials. Excessive doses may cause symptoms of indigestion, but most effects are likely to be transient exacerbations of gastric upset. Based on laboratory studies, it is likely that ginger may enhance the bioavailability of other drugs. So far, research has failed to confirm antithrombotic (anticoagulating) actions, with no effect on platelet functions or clotting being observed at up to 2 g doses of dried ginger. Theoretical interaction with blood-thinning medicines is not proven in human clinical trials. When used at less than 3g/day it appears safe in patients susceptible to haemorrhage, or taking aspirin, warfarin, heparin, rivaroxaban or other anticoagulants.

Based on clinical studies and centuries of safe use as a food by pregnant women, ginger appears to be safe for use during pregnancy when taken in recommended dosages. A theoretical caution about using any treatment in pregnancy is countered by evidence of benefit for nausea and vomiting in pregnancy and even in hyperemesis gravidarum (severe morning sickness during pregnancy). In these circumstances, modest consumption appears acceptable but the use of high doses for health conditions in pregnancy is not recommended without medical supervision. Similarly, ginger seems to be compatible with breast feeding.

As ginger increases digestion of nutrients it may also increase assimilation of pharmaceutical drugs and allopathic medication. It may reduce the effect of antacids as it increases gastric secretions.

Dosage

0.75-3g (dried rhizome); to reduce nausea and vomiting up to 6g, (or up to 3g in pregnancy)

The quantities can be multiplied 2-3 fold for fresh ginger. The ideal dosage for ginger however will be determined by each person. It is generally advisable to start with a low dose and increase until the sensation in the mouth is just beyond pleasantly hot; this will vary among individuals. If a dose is too high, the stomach may react temporarily with symptoms of indigestion. Otherwise, use doses in the lower range for long-term administration and in the highest range for acute treatments.

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