



## TURMERIC (*Curcuma*)

### Also Known As:

Curcumae Longa, Curcumae Longae Rhizoma, Curcumin, Curcuminoid, Curcuminoids, Halada, Haldi, Haridra, Indian Saffron, Nisha, Pian Jiang Huang, Radix Curcumae, Rajani, Rhizoma Cucurmae Longae.

### Scientific Name:

*Curcuma longa*, synonym *Curcuma domestica*; *Curcuma aromatica*.  
Family: Zingiberaceae.

### People Use This For:

Orally, turmeric is used for dyspepsia, abdominal pain, hemorrhage, diarrhea, flatulence, abdominal bloating, loss of appetite, jaundice, hepatitis, and liver and gallbladder complaints. It is also used for headaches, bronchitis, colds, respiratory infections, fibromyalgia, leprosy, fever, amenorrhea, and cancer. Other uses include depression, edema, worms, kidney inflammation, and cystitis.

Topically, turmeric is used for analgesia, ringworm, bruising, leech bites, eye infections, inflammatory skin conditions, inflammation of the oral mucosa, and infected wounds.

In food and manufacturing, the essential oil is used in perfumes, and turmeric and its resin are used as a flavor and color component in foods. Turmeric is also a culinary spice and a major ingredient in curry powder.

### Safety:

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

**POSSIBLY SAFE** ...when used orally or topically in medicinal amounts (10453, 11144, 11148, 11149, 11150).

**PREGNANCY: LIKELY UNSAFE** ...when used orally in medicinal amounts; turmeric might stimulate menstrual flow and the uterus (12).

**LACTATION:** There is insufficient reliable information available about the safety of using turmeric in medicinal amounts during lactation.

### Effectiveness:

#### **POSSIBLY EFFECTIVE**

**Dyspepsia.** Taking turmeric orally seems to relieve dyspeptic symptoms (11144).

#### **INSUFFICIENT RELIABLE EVIDENCE to RATE**

**Anterior uveitis.** Clinical research suggests curcumin given orally might be useful for treating chronic anterior uveitis (11150).

**Colorectal cancer.** Preliminary clinical research suggests an extract of turmeric might stabilize colorectal cancer refractory to other treatments in some patients (10453).

**Rheumatoid arthritis (RA).** Curcumin, a constituent of turmeric, might relieve some symptoms of rheumatoid arthritis (RA) (11149).

**Skin cancer.** Other preliminary clinical research suggests that an ethanol extract of turmeric in combination with turmeric ointment might relieve odor and itching associated with skin cancers (11148).

More evidence is needed to rate turmeric for these uses.

### Mechanism of Action:

The applicable part of turmeric is the rhizome. Turmeric's major active constituents are curcuminoids including curcumin (diferuloylmethane), a yellow pigment. It seems to have anti-inflammatory activity, possibly by inhibiting cyclooxygenase-2 (COX-2), prostaglandins, and leukotrienes (11138, 11139, 11140, 12482).

Turmeric also exhibits chemopreventive and growth inhibitory activity against several tumor cell lines. It seems to induce apoptosis in cancer cells and may inhibit angiogenesis (11141, 11142, 12482).

Curcumin might have antithrombotic effects. Preliminary research suggests it might inhibit platelet-activating factor and arachidonic acid platelet aggregation, possibly by interfering with thromboxane synthesis (11143).

Other preliminary research suggests that turmeric might also have antioxidant and immunostimulatory effects (11140, 11147). It also seems to have activity against some bacteria, human immunodeficiency virus (HIV), and the protozoan *Leishmania amazonensis* (11140).

The bioavailability of curcumin is very low after oral administration (10453). Bromelain is sometimes recommended to enhance curcumin absorption, but there's no reliable evidence to support this. Curcumin administration appears to reduce carbon tetrachloride cytochrome P450 enzyme inactivation in animal models. However, curcumin does not appear to significantly induce CYP enzyme activity (15822). In animal models, benzo(a)pyrene-related CYP1A1 and CYP1A2 induction is normalized by a 1% turmeric diet (15823, 15824). This suggests that turmeric might inhibit activation of carcinogens that are metabolized by CYP enzymes. The turmeric diet also appears to increase glutathione S-transferase (GST) activity in some tissues (15823).

### Adverse Reactions:

Orally, turmeric is generally well tolerated (10453, 11144, 11148, 11149, 11150). It can cause gastrointestinal (GI) adverse effects such as nausea and diarrhea (10453). Topically, turmeric can cause allergic dermatitis (11146).

### Interactions with Herbs & Supplements:

#### ANTICOAGULANT/ANTIPLATELET HERBS AND SUPPLEMENTS:

Concomitant use of turmeric with herbs that might affect platelet aggregation could theoretically increase the risk of bleeding in some people (11143). These herbs include angelica, clove, danshen, garlic, ginger, ginkgo, Panax ginseng, red clover, willow, and others.

### Interactions with Drugs:

#### ANTICOAGULANT/ANTIPLATELET DRUGS

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

Concomitant use of turmeric with these drugs might increase the risk of bleeding due to decreased platelet aggregation. Turmeric has been reported to have antiplatelet effects (11143); avoid concomitant use. Some of these drugs include aspirin, clopidogrel (Plavix), dalteparin (Fragmin), enoxaparin (Lovenox), heparin, ticlopidine (Ticlid), warfarin (Coumadin), and others.

### Interactions with Foods:

None known.

#### Interactions with Lab Tests:

None known.

#### Interactions with Diseases or Conditions:

**BILE DUCT OBSTRUCTION AND GALLSTONES:** Turmeric can cause gallbladder contractions (11145). Use with caution in patients with gallstones or gallbladder disease.

**SURGERY:** Turmeric has antiplatelet effects. Turmeric might cause excessive bleeding if used perioperatively. Tell patients to discontinue turmeric at least 2 weeks before elective surgical procedures.

#### Dosage/Administration:

**ORAL:** For dyspepsia, 500 mg of turmeric four times daily has been used (11144). For colorectal cancer, curcuma extract 440 to 2200 mg, containing curcumin 36 to 180 mg, has been given daily for up to 4 months (10453).

**TOPICAL:** No typical dosage.

#### Editor's Comments:

Turmeric has a warm, bitter taste and is frequently used to flavor or color curry powders, mustards, butters, and cheeses (6002).

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[Avoid confusion with Javanese turmeric root \(\*Curcuma zedoaria\*\).](#)

## JAVANESE TURMERIC

#### Also Known As:

Curcuma, Curcumae xanthorrhizae rhizoma, Java Turmeric, Temu Lawak, Temu Lawas, Tewon Lawa.

#### Scientific Name:

Curcuma xanthorrhiza.  
Family: Zingiberaceae.

#### People Use This For:

Orally, Javanese turmeric is used for indigestion, irritable bowel syndrome (IBS), feelings of fullness or bloating after meals, flatulence, peptic disorders, for improving appetite and digestion, and for liver and gallbladder complaints.

#### Safety:

**POSSIBLY SAFE** ...when used orally and appropriately, short-term. Javanese turmeric extract 20 mg three times daily has been safely used in a study lasting up to 18 weeks (14415).

**POSSIBLY UNSAFE** ...when used orally in excessive amounts or for prolonged use. Javanese turmeric can cause gastric irritation and nausea (2, 8).

**PREGNANCY AND LACTATION:** Insufficient reliable information available; avoid using.

#### Effectiveness:

## **POSSIBLY INEFFECTIVE**

**Irritable bowel syndrome (IBS).** Some evidence suggests that taking Javanese turmeric extract 20 mg three times daily for 18 weeks does not significantly improve symptoms of irritable bowel syndrome (14415).

There is insufficient reliable information available about the effectiveness of Javanese turmeric for its other uses.

### **Mechanism of Action:**

The applicable part of Javanese turmeric is the root. Javanese turmeric root contains a volatile oil with the chief components of alpha-curcumene, xanthorrhizole, beta-curcumene, germacrene, furanodien, and furanodienone. The root also contains curcumin, demethoxycurcumin, and non-phenolic diarylheptanoids (18). Javanese turmeric is thought to stimulate bile production (2). It might also have antitumor effects (18).

### **Adverse Reactions:**

Orally, use of large amounts or for prolonged periods of time can cause gastric irritation and nausea (2, 8).

### **Interactions with Herbs & Supplements:**

None known.

### **Interactions with Drugs:**

None known.

### **Interactions with Foods:**

None known.

### **Interactions with Lab Tests:**

None known.

### **Interactions with Diseases or Conditions:**

**LIVER OR GALLBLADDER DISEASE:** Javanese turmeric is contraindicated in people with acute bile duct inflammation, biliary tree inflammation (8), bile duct obstruction (2, 8), or jaundice (8) due to bile stimulating effects (2). Individuals with gallstones should have medical evaluation before using (2).

### **Dosage/Administration:**

**ORAL:** To stimulate bile production, a typical oral dose is one cup tea several times daily between meals. To make tea, steep 0.5-1 grams coarsely powdered root in 150 mL boiling water for 5-10 minutes, and strain. The average daily amount used is 2 grams root or equivalent preparations (2). For improving appetite, digestion, or for flatulence, a typical dose is one cup tea before or during meals. To make tea, steep 0.5-1 grams coarsely powdered root in 150 mL boiling water for 5-10 minutes, and strain (8). The average daily amount used is 2 grams root or equivalent preparations (2).

### **Editor's Comments:**

Javanese turmeric is indigenous to the forests of Indonesia and the Malaysian peninsula (18).

# ZEDOARY

## Also Known As:

Cedoaria, Cetoal, E Zhu, E-Zhu, Indian Arrowroot, Kua, Sati, Shati, Temu Kuning, Temu Putih, Round Zedoary, Turmeric, Zedoaire, Zedoária, Zedoarie rhizoma, Zedoary Oil, Zitwer, Zitwerwirtzelstock.

## Scientific Name:

*Curcuma zedoaria*, synonym *Amomum zedoaria*.  
Family: Zingiberaceae.

## People Use This For:

Orally, zedoary is used for colic, spasms, stimulating appetite, indigestion, anxiety, stress and fatigue, and as an anti-inflammatory. Topically, zedoary is used as a mosquito repellent.

## Safety:

There is insufficient reliable information available about the safety of zedoary. **PREGNANCY: LIKELY UNSAFE** ...when used orally. Zedoary is thought to have abortifacient effects (12, 19); avoid using.

**LACTATION:** Insufficient reliable information available; avoid using.

## Effectiveness:

There is insufficient reliable information available about the effectiveness of zedoary.

## Mechanism of Action:

The applicable part of zedoary is the rhizome. Zedoary contains essential oil, which is responsible for many of its pharmacological effects.

Zedoary is also thought to contain curcuminoids (512); however, no curcuminoids were detected in a methanolic zedoary extract (15897). The curcuminoid constituents of zedoary, if present, are thought to stimulate bile production and have gallbladder emptying effects (512).

The oil contains 47% epicurzerenone, 14% curdione, 9% 5-isopropylidene-3,8-dimethyl-1(5H)-azulenone, and 20% beta-turmerone (15895, 15898). Other minor constituents of the oil include 1,8-cineole, camphor, beta-elemene, alpha-terpineol, and others. Zedoary oil has also been found to contain large amounts of sesquiterpenes and monoterpenes (15895); however, analyses of oil content have not been consistent.

Sesquiterpene ketones known as turmerones are also thought to increase bile production (512). The isolated sesquiterpene constituent dehydrocurdione also seems to have anti-inflammatory effects in animal models (4011).

There is interest in zedoary for liver disease. Sesquiterpenes isolated from zedoary also seem to have hepatoprotective effects in animal models (4012). Zedoary aqueous extracts also seem to reduce proliferation of human hepatic myofibroblasts (15897).

Zedoary is thought to have anti-inflammatory effects. In vitro, a methanolic zedoary extract inhibits cyclooxygenase-1 (COX-1), but does not significantly inhibit cyclooxygenase-2 (COX-2). This extract also does not significantly reduce swelling in an animal model (15897).

Zedoary extracts and constituents have cytotoxic effects and antimicrobial activity in vitro (4013, 4014, 15894, 15895, 15896). Zedoary tuber extracts have in vitro activity against several bacteria and fungi, including *Bacillus subtilis*, *Escherichia coli*, *Proteus mirabilis*, and *Candida albicans*. However, zedoary tuber extracts do not appear to have activity against *Staphylococcus aureus* (15896). The oil of zedoary also has in vitro antimicrobial activity against *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas*

aeruginosa, Salmonella typhimurium, and others (15895). The volatile oil of zedoary also has larvicidal activity against the mosquito species Anopheles dirus and Aedeo aegypti (15894, 15898); however, zedoary volatile oil has greater activity against Anopheles dirus (15894).

#### Adverse Reactions:

None reported.

#### Interactions with Herbs & Supplements:

None known.

#### Interactions with Drugs:

None known.

#### Interactions with Foods:

None known.

#### Interactions with Lab Tests:

None known.

#### Interactions with Diseases or Conditions:

**MENORRHAGIA:** Some experts suggest that zedoary should not be used by women who have heavy menstrual periods (12).

#### Dosage/Administration:

**ORAL:** One cup of tea is typically taken three times daily at meals. To make tea, steep 1-1.5 grams powdered dried rhizome in 150 mL boiling water, 5-10 minutes, and strain (18).

#### Editor's Comments:

Traditional methods for preparing zedoary involve prolonged washing with water to remove most of the protein, water-soluble nutrients, and presumably, an unidentified toxic constituent (4015).

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