What is a fever?

- Fever is elevated body temperature (>37.8°C orally or >38.2°C rectally) or an elevation above a person's known normal daily value.

- Fever occurs when the body's thermostat (located in the hypothalamus) resets at a higher temperature, primarily in response to an infection.

- The elevated temperature is a strategy by the body to kill off foreign bacteria.
White Willow (Salix alba L)

- Willow bark was commonly used during the time of Hippocrates. Patients were advised to chew on the bark to relieve pain and fever.
- The active constituent of willow bark is thought to be salicin.
- Salicin is metabolized to salicyl alcohol and then to salicylic acid. From there, metabolism is the same as aspirin.
- An ethanolic extract of willow bark seems to inhibit cyclooxygenase (COX)-2 mediated prostaglandin release, but it doesn't seem to directly affect COX-1 or COX-2 activity.


Source: http://naturaldatabase.therapeuticresearch.com

Meadowsweet (Filipendula ulmaria)

- Meadowsweet contains salicylate constituents.
- Use above ground parts.
- Dose is one cup of the tea several times per day. The tea is prepared by steeping 2.5-3.5 grams of the dried flower or 4.5 grams of the above-ground parts in 150 mL boiling water for 10 minutes and then straining.
- The usual dose of the liquid extract (1:1 in 25% alcohol) is 1.5-6 mL three times per day.
- The common dose of the tincture (1:5 in 45% alcohol) is 2-4 mL three times per day.

Source: http://naturaldatabase.therapeuticresearch.com
Ginger (Zingiber officinale)

- Perennial that grows in India, Jamaica, and China
- Cultivated for more than 3000 years in China
- Used for nausea, motion sickness, as an anti-inflammatory agent and anti-flatulant

Ginger

- Volatile oils 1-3% of rhizome
- 400+ compounds
- Can be oleoresins concentrated up to ~35% for extraction
- Phenolic compounds and sesquiterpenes
  - Gingerols
  - Shogaols
- Other volatile compounds
  - Zingerone
Candied Ginger

- Dried ginger higher in shogaols
- Shogaols exhibit anti-inflammatory activity
- 1 inch square piece is equivalent to ~ 500-1000 mg of dried ginger


Ginger

- Anti-inflammatory effects
  - 6 shogaols, 6-gingerol and 10-gingerdione powerful inhibitors of thromboxane (TXB2), leukotriene (LTB4) and prostaglandin (PGE2) biosynthesis
  - Gingerols and shogaols inhibit Cox-2 and TNF-Alpha
  - 6-shogaol has produced anti-nociception
  - Inhibited release of substance P in rats
  - 10-fold more potent than capsaicin
  - Ultraviolet - 10 times effective compared to capsaicin


Dosage: for those with inflammatory conditions is 1-2 G/day (with 20% gingerols and shogaols) or 2-4 grams of the cut rhizome

- Average consumption of ginger in Asia ~ 1-2 G
- Toxicity: few reports of gastric irritation (usually in doses greater than 5 gr)
- Contraindications: avoid in patients with gallstones possible a bile stimulant
- Pearl: take with meals GI upset fairly common > 5 grams/day

- 6-8 shogaol has produced anti-nociception
- Inhibited release of substance P in rats
- 10-fold more potent than capsaicin
- Ultraviolet - 10 times effective compared to capsaicin

Several studies looking at nausea are very effective.

- Activity: 5-HT3 receptors (ileum) same site of activity as Zofran.
- Those with nausea given 5 mg of powdered ginger or diphenhydramine showed reduction of nausea within 25 minutes.
- 2 studies contradicted this while 3 agreed with the above results.
- In another study patients with hyperemesis gravidarum were given ginger or placebo and showed 70% improvement.

Anti-ulcer activity

- The gingersol have been shown to stimulate gastric muscular activity and may have anti-ulcer properties (animals).
- Anti-platelet aggregation may alter platelet aggregation (inhibit) by interfering with thromboxane production.
- Anti-inflammatory action via modification of interleukin-1, and inhibition of prostaglandin and leukotriene biosynthesis.

Adverse effects

- Watch for bleeding.
**Turmeric (Curcuma longa)**

- A rhizome used in Ayurvedic and other East-Asian cultures.
- Historical uses: arthritis, digestive problems, asthma, rheumatism, & skin ailments.
- Pharmacologic activity:
  - Volatile oils ~ 14%
  - Curcumoids ~ 5%
  - Curcumoids impart a yellow color that is often used in natural food coloring.
  - One of five spices in curry.

---

**Pharmacologic activity**

- Volatile oils: curcumin, demethoxy-cucumin, bisdemethoxy-cucumin, turmerone and zingiberone.
- Curcumoids: considered "more potent" with a large number of in vitro studies.
- Bioavailability approximately 50% if taken orally.
- Bioavailability can be enhanced by adding bromelain, a natural digestive enzyme, or black pepper.


---

**Molecular targets of curcumin**

Turmeric

Dosage: 200–400 mg TID of curcumin or 4,000 mg/day of turmeric (std curcuminoids)

Dietary intake 2-2.5 g/day in Asia

Adverse effect: gastric irritability and dermatitis

Contraindications: avoid in patients with gallstones or gastric hyperacidity and pregnancy

Drug interactions: increased bleeding with anticoagulants, anti-platelet and thrombolytic agents (theoretical)

Note: often confused with Javanese turmeric (different plant)

Blumenthal 2004; McGuffin 1997

Turmeric (Curcuma longa)

• A rhizome used in Ayurvedic and other East-Asian cultures
• Historical uses: arthritis, digestive problems, asthma, colic & skin ailments
• Pharmacologic activity
  • Volatile oils ~ 14%
  • Curcumoids ~ 5%
  • Curcumoids impart a yellow color that is often used in natural food coloring
  • One of five spices in curry

Pharmacologic activity

• Volatile oils: curcumin, demethoxycurcumin, bisdemethoxycurcumin, turmerone and zingiberen
• Curcumoids
  • Curcumin analogues considered “more potent” large number of in vitro studies
  • Bioavailability approximately 50% if taken orally
  • Bioavailability can be enhanced by adding bromelain a natural digestive enzyme

Sharma et al Clin Cancer Res 2001
Turmeric

- General pharmacologic activity
  - anti-inflammatory
  - anti-oxidant
  - anti-hepatotoxic
  - anti-neoplastic activity
  - Prostate, colon, breast, skin and gastric cancer cell lines
  - bile stimulant activity
  - anti-bacterial

Dosing: 200-400 mg TID of curcumin or 4,000 mg/day of turmeric (std curcumoids)

Dietary intake 2-2.5 g/day in Asia

Adverse effect: gastric irritability and dermatitis

Contraindications: avoid in patients with gallstones or gastric hyperacidity and pregnancy

Drug interactions: increased bleeding with anticoagulants, anti-platelet and thrombolytic agents (theoretical)

Note: often confused with Javanese turmeric (different plant)

Blumenthal 2004, McGuffin 1997

Garlic

- Folk remedy as well as modern herbal medicine
- Common current uses include hypertension, hyperlipidemia, treatment of bacterial and fungal infections
- Multiple active constituents including allicin and alliin

GARLIC

Dr. Albert Schweitzer, who served the underserved in Africa used garlic as an antidote to dysentery.

GARLIC: DOSAGE AND ADVERSE EFFECTS

- Concerns re anticoagulant properties--most advise stopping prior to surgery if possible
- GI distress
- Typical dose 600-1200 mg daily

Elderberry (Sambucus nigra)

- Influenza: Clinical research shows that some elderberry extracts might reduce flu-like symptoms. A specific syrup formulation of elderberry fruit extract (Sambucol, Nature’s Way) 15 mL (1 tablespoon) four times daily seems to reduce the symptoms and duration of influenza infection when given within 48 hours of initial symptoms.
- Significant symptom relief seems to occur within 2 to 4 days of treatment for most patients.
- On average, this elderberry extract seems to reduce the duration of symptoms by about 56%.
Elderberry (Sambucus nigra)

- VIRAL: For treating influenza, an adult dose of 15 mL (1 tablespoon) 4 times daily of a specific elderberry juice-containing syrup (Sambucol, Nature’s Way) daily for 3-5 days has been used.
- A dose of 15 mL (1 tablespoon) twice daily for 3 days has been used in children.
- Another specific elderberry extract in a lozenge formulation (ViraBLOC, HerbalScience) 175 mg taken 4 times daily for 2 days has also been used.
- Elderberry should be started within 24-48 hours of symptom onset.


Thyme (Thymus vulgaris)

- Thyme contains thymol (~30% - 70%), carvacrol 3% to 15%, and several other constituents including borneol, perillol, linalool, and alpha-pinene.
- Ancient Egyptians used thyme for embalming.
- Thymol is an ingredient in a known mouthwash Listerine.
- Preliminary research suggests that thyme has antimicrobial activity and modest antibacterial effects. It also seems to have antiviral activity against influenza A and respiratory syncytial virus.
- For the treatment of bronchitis, a combination of thyme 160 mg and cowslip 60 mg (Bronchipret) has been used three times daily.

You can make thyme honey for colds to use with tea.


Rosemary (Rosmarinus officinalis)

- Rosmarinus officinalis
- Translated from Latin “sea dew”
- Known to have antibacterial, antifungal, and anti-oxidant properties
- Leaves contain the oil of cineole, borneol, camphor and pinenes
Rosemary

**ORAL:** A typical dose is 1-2 grams of crude leaf. Rosemary is often prepared as a tea. A typical dose is one cup of tea three times daily, prepared by steeping 1-2 grams leaf in 150 mL boiling water for 5-10 minutes then straining.

An *A liquid extract (1:1 in 45% alcohol)* has also been used in a dose of 2-4 mL three times daily.

**TOPICAL:** Typically, semi-solid or liquid preparations containing 6-10% of the essential oil are used.

For a rosemary bath, 50 grams crude leaf in 1 L hot water is commonly added to bath water.

---

Tamarind

The partially dried fruit/pod of tamarind is used medicinally. It contains plant acids, largely d-tartaric acid, sugars, pectin, protein, vitamins, and minerals. The volatile oil contains over 60 compounds including methyl salicylate and safrole. The fruit pulp has mild laxative properties, but heat causes loss of this effect.

Some evidence suggests an aqueous extract is highly toxic to the trematode Schistosoma mansoni, and the parasite-carrying snail Bulinus truncatus.

Other evidence suggests that the tamarind constituent, tamarindienal, might have antifungal activity against *Aspergillus niger* and *Candida albicans*, and antibacterial activity against *Bacillus subtilis*, *Bacillus cereus*, *Escherichia coli*, and *Pseudomonas aeruginosa*.

---

Tamarind (Tamarindus indica)

**Dosing:** As a laxative, 10-50 grams of tamarind paste is used orally as fruit cubes. This is a paste prepared from the fermented fruit of *Tamarindus indica*.

Taking tamarind fruit extract as a component of the food millet porridge concurrently with aspirin seems to increase aspirin absorption and blood levels. Theoretically, this could increase the risk of aspirin side effects.

Taking tamarind fruit extract as a component of the food millet porridge concurrently with ibuprofen seems to increase ibuprofen absorption and blood levels. Theoretically, this could increase the risk of ibuprofen side effects.

Due to its cooling and antipyretic properties, tamarind is also used to treat fever. (20 to 40 g.) tamarind pulp diluted in water up to 3 times daily.

**Infusion:** 30 g. of dry leaves per liter of water, 3 cups daily.

You can also consume tamarind drink.
Astragalus

The applicable part of astragalus is the root. Astragalus contains a variety of active constituents including more than 40 saponins such as astragaloside, several flavonoids including isoflavones, pterocarps, and isoflavans, polysaccharides, multiple trace minerals, amino acids, and coumarins. Astragalus has antioxidant effects. It inhibits free radical production, increases superoxide dismutase, and decreases lipid peroxidation.

For prevention of the common cold, 4-7 grams per day is commonly used. Traditionally, astragalus powder 1-30 grams per day is used. In some cases, people have used astragalus powder 30-60 grams per day.

Astragalus is often promoted for its effects on the immune system, liver, and cardiovascular system. Astragalus seems to improve the immune response. In vitro, the polysaccharide constituents appear to bind and activate B cells and macrophages, but not T cells.

Astragalus potentiates the effects of interferon, increases antibody levels of IgA and IgG in nasal secretions, and increases interleukin-2 levels (IL-2). It also seems to improve the response of mononuclear cells and stimulate lymphocyte production. Astragalus seems to potentiate LAK cell activity in vitro when used in combination with IL-2. Additionally, there is preliminary evidence that astragalus extracts can restore or improve immune function in cases of immune deficiency.

Astragalus seems to restore in vitro T-cell function which is suppressed in cancer patients.

However, this should be avoided because some research suggests that doses greater than 28 grams per day offer no additional benefit and might even cause immune suppression.

Astragalus decoction 0.5-1 L per day (maximum of 120 grams of whole root per liter of water) has been used. As a soup, mix 30 grams in 3.5 L of soup and simmer with other food ingredients.
The applicable part of oregano is the leaf and oil.

Oregano contains the constituents carvacrol and thymol which have anthelmintic, fungicidal, and irritant properties. The essential oil is thought to have diuretic, expectorant, and antispasmodic properties. It might also stimulate bile production.

Oregano oil also has in vitro activity against a variety of common gram positive and gram negative organisms, including Acinetobacter calcoaceti, Enterococcus faecalis, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeroginosa, Salmonella species, Serratia marcescens, Staphylococcus aureus, and the yeast Candida albicans.

Oregano oil and carvacrol in vitro has anti-influenza virus activity.

Oregano oil seems to inhibit the growth intestinal parasites in vivo.

There is preliminary evidence that oregano may contain phytoprogestins that bind the progesterone receptor.

ORAL: For intestinal parasitic infection, emulsified oil of oregano has been used in a dose of 200 mg three times daily for 6 weeks (1678). Traditionally, a typical dose is one cup of tea. To make tea, steep 1 heaping teaspoon of leaf in 250 mL boiling water 10 minutes, strain. Tea may be sweetened with honey (18).

TOPICAL: No typical dosage. Traditionally, unsweetened tea is used as a gargle or mouthwash (18). To use oregano as a bath additive, steep 100 grams dried leaf in 1 L water for 10 minutes, strain, and add to a full bath (18).
Vervain (Verbena officinalis)

- The applicable parts of vervain are the above ground parts.
- Vervain contains verbascoside (acetoside), verbenalin, beta-sitosterol, urolic acid, oleaneic acid, chlorogenic acid, and other constituents.
- Preliminary research suggests vervain might have anti-inflammatory and weak antimicrobial activity. Constituent verbascoside has analgesic, sedative effects, antioxidant, and hepatoprotective effects.
- For acute or chronic sinusitis, a specific combination product (SinuComp Phytopharmica) of vervain 36 mg plus gentian root 12 mg and 36 mg each of elderflower, sage, and cowslip flower has been used three times daily.


Vanilla

- The main chemical components of vanilla oil are vanillin and traces of other constituents such as eugenol, piperonal and capric acid.
- Vanillin and eugenol are responsible for vanilla’s delicious taste and many of its beneficial health effects. Vanilla oil contains approximately 1,000 aromas, many of which are present in very small amounts. Vanillyl ethyl ether, acetic acid, p-hydroxybenzaldehyde and capric acid are among the chemicals present in it.
- Vanilla oil can also work as a potential fever reducer due to its eugenol and vanillin content, the same compounds that lessen inflammation and strengthen the body’s immune system.
- Dose: would use as an essential oil 1-3 drops in an infuser

Cumo CM Encyclopedia of Cultivated Plants: From Acacia to Zinnia 2013

Eucalyptus

- Eucalyptus oil, which is made from the leaves and branches of eucalyptus, contains 60% to 90% eucalyptol (1,8-cineole).
- Eucalyptol appears to have analgesic and anti-inflammatory effects. Preliminary research suggests eucalyptol might block the production of arachidonic acid metabolites that mediate pain.
- It might also inhibit cyclooxygenase pathways. It also seems to inhibit the production of cytokines responsible for inflammation such as tumor necrosis factor (TNF- alpha), interleukin 1-beta, leukotriene B4, and thromboxane B2.
- Essential oil infusion 2-3 drops in infuser
Eucalyptus

- Ethanolic extracts of eucalyptus leaf also seem to have anti-inflammatory activity.
- For asthma, the eucalyptol constituent of eucalyptus oil has been given in doses of 200 mg three times daily.

Mint

- Peppermint oil has antiviral and antibacterial activities in vitro.
- The menthol constituent of peppermint is active against fungal microorganisms such as Trichophyton rubrum, Trichophyton mentagrophytes, Microsporum canis, Epidermophyton floccosum, and Epidermophyton stockdale.
- Preliminary research suggests that luteolin-7-O-rutinoside from peppermint leaf can inhibit histamine release. Laboratory models of allergic rhinitis suggest that peppermint leaf extract might relieve nasal symptoms.

I HAVE AN EARACHE.

2000 B.C. HERE, EAT THIS ROOT.

1000 A.D. THAT ROOT IS HEATHEN, SAY THIS PRAYER.

1850 A.D. THAT PRAYER IS SUPERSTITION, DRINK THIS POTION.

1940 A.D. THAT POTION IS SNAKE OIL, SWALLOW THIS PILL.

1985 A.D. THAT PILL IS INEFFECTIVE, TAKE THIS ANTIBIOTIC.

2000 A.D. THAT ANTIBIOTIC IS ARTIFICIAL. HERE, EAT THIS ROOT.

- ANONYMOUS