Chamomile

Name

Scientific Name
Matricaria recutita
(Matricaria chamomilla; Chamomilla recutita)

Derivation
Matricaria – from Latin “mater” meaning mother, feminine

Common Name(s)
- Chamomile
- German Chamomile

Other species used medicinally
None

Confusers
Roman Chamomile (Anthemis nobilis)

Part(s) Used
Flowers

Botany & Conservation

Plant Family
Asteraceae

Distribution
Native to Europe, Western Asia, North Africa. Now cultivated in many countries.

Conservation
Chamomile is cultivated for medicinal, cosmetic use and for gardens. There are no conservation concerns.

Phytochemistry & Pharmacology

Phytochemical Constituents
Phytochemicals currently regarded as potentially important:
- Volatile oil (0.4 – 1.5%) blue colour – chamazulene (1-15%); sesquiterpenes (up to 50% including (-)-α-bisabolol); (-)-alpha-bisabolol oxide A and B, (-)-alpha-bisabolone oxide A, spiroethers (cis- and trans- enyndicycloether), sesquiterpenes (anthecotulid),...
Chamomile

cadinene, farnesene, furfural, spathulenol, proazulene (matricarin, matricin). Chamazulene is formed from matricin during steam distillation of the oil.

- **Flavone glycosides** (apigenin) and flavonols (luteolin glucosides, quercetin glycosides, and isohamnetin) (up to 8%)
- **mucilage** polysaccharides (up to 10%)
- **coumarins** (0.1%) - umbelliferone, herniarin
- **tannin** (<1%)

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Pharmacological Actions

Modern pharmacological actions, based primarily on in vitro and animal studies.

- **antimicrobial** - \(\alpha\)-bisabolol, luteolin, quercetin, and apigenin. \(\alpha\)-bisabolol is credited for providing the majority of antibacterial, antifungal, anti-inflammatory, and anti-ulcer activity.¹⁻⁸
  - antiviral - inhibit growth of poliovirus, herpes virus[^1]
  - antibacterial - essential oil (25 mg/ml); whole plant extract (10 mg/ml) - *Bacillus subtilis*, *Staphylococcus aureus*, *Streptococcus mutans*, *Streptococcus salivarius*, *Escherichia coli*, *Mycobacterium tuberculosis* and *Mycobacterium avium*
  - antifungal - essential oil - *Candida albican*, *Trichophyton mentagrophytes*, *Trichophyton rubrum*

- **anti-allergic** - some anti-inflammatory effects due to azulenes (chamazulene, prochamazulene, guaiazulene) action on the pituitary and adrenals - increasing cortisone release and reducing histamine release.² Extract showed potent anti-allergic activity by inhibition of histamine release from mast cells.²⁹

- **anti-infl ammatory** - Extracts have been shown to inhibit cyclooxygenase and lipoxygenase, and consequently prostaglandins and leukotrienes.³⁻⁵

- **spasmolytic** - apigenin, \(\alpha\)-bisabolol, cispiroethers. In guinea pig ileum study 10 mg apigenin provided the antispasmodic activity roughly equivalent to 1 mg of papaverine (opioid antispasmodic).¹⁰ In mice, intraperitoneal administration of extract produced depressive effect on the central nervous system.¹⁷

- **antiulcer** - *Helicobacter pylori*.⁴ \(\alpha\)-Bisabolol inhibits gastric ulcer formation induced by indomethacin, ethanol, or stress.⁶ In rats, oral administration of 0.8-80 mg/kg bisabolol demonstrated significant protective effect against gastric toxicity from acetylsalicylic acid.¹⁵

- **anxiolytic** - apigenin. In mice, intraperitoneal administration of apigenin extract provided anxiolytic effect (central benzodiazepine receptors-ligand), no memory impairment.¹⁶

- **anticancer** - apigenin and apigenin glycosides (antiproliferative and apoptotic)¹⁷

- **antidiabetic** - antihyperglycemic effect and protected beta-cells in rat model.³⁰

Traditional Actions

- nervine relaxant
- carminative
- bitter tonic, cholagogue
- vulnerary
- ‘mother of the gut’

Organoleptic Qualities

Aromatic, neutral (warming & cooling), slightly bitter

Clinical Indications

Traditional

- digestive upsets
- nervousness
- restless, insomnia
- teething
- wounds (topical)
- eye wash (topical)

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Modern
- Anxiety-related disorders\(^{18,27}\)
- Gastroenteritis\(^{19}\), colic\(^{20}\), IBS, food allergies
- Wound healing (topical)\(^{21,28}\)
- Allergic dermatitis (internal and topical)\(^{22}\)

Preparations & Dosage

Preparations
- Dried
- Infusion
- Tincture
- Concentrated extract
- Essential oil (blue)
- Cream (topical)

Dosage Guidelines
Considerations
- Higher dosing appropriate for severe, acute conditions.

Small Animals
- Dried herb: 30 - 60 mg/kg (daily dose divided BID or TID)

Equines
- Dried herb: 4.5 – 9g/kg (daily dose divided BID or TID)

Humans
- Dried herb: 1.5 - 3 g/day

Safety & Toxicity
Chamomile is generally regarded as a safe herb for animals.\(^{23-26}\)

Contraindications
Contraindicated in patients with known sensitivity to Asteraceae (daisy family).

Herb-drug interactions
No significant herb/drug interactions have been reported in humans or animals.

Pregnancy & Lactation
Safety during pregnancy and lactation in animals has not been established, therefore administer with caution in pregnant and lactating animals.

LD\(_{50}\) - acute oral LD\(_{50}\) and acute dermal LD\(_{50}\) greater than 5 g/kg body weight (rabbit model)\(^{26}\)

References
7. Isaac O. Pharmacological investigations with compounds of chamomile i. on the pharmacology of (=)-alpha-bisabolol and bisabolol oxides (review) (author’s transl). Planta Med 1979;35:118-124. [Article in German]


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