

## German Chamomile.(Drug overview)

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Matricaria Recutita

### TRADE NAMES

Chamomile Flowers (available from numerous manufacturers), Standardized Chamomile Extract, Wild Chamomile, Kid Chamomile

### DESCRIPTION

**Medicinal Parts:** The medicinal parts consist of the entire flowering herb or only the flowers.

**Flower and Fruit:** The flower heads are terminal and long-pedicled. The flower is white with a yellow center. The margin flowers are obtuse with a tunicate margin. The ray florets are white, linguiform, female, and have 3 teeth. The disc florets are tubular and androgynous, have 5 teeth and a hollow receptacle.

**Leaves, Stem, and Root:** The plant is a 20 to 40 cm high herb with an erect, glabrous stem, which is branched above. The leaves are 2 to 3 pinnatisect and have a narrow thorny tip.

**Characteristic:** The receptacle of the compound head of German Chamomile is hollow which distinguishes it from other types of Chamomile.

**Habitat:** German Chamomile is indigenous to Europe and northwest Asia, naturalized in North America and elsewhere.

**Production:** German Chamomile consists of the fresh or dried flower heads of *Matricaria recutita* and their preparations.

**Other Names:** Chamomilla, Chamomile, Hungarian Chamomile, Pin Heads, Single Chamomile

### ACTIONS AND PHARMACOLOGY

#### COMPOUNDS

**Volatile oil (0.4-1.5%):** chief components (-)-alpha-bisabolol (levomenol), bisabolol oxide A, bisabolol oxide B, bisabololone oxide A, beta-trans-farnesene, trans-en-yne-dicycloether (polyene spiroether, adjoining cis-en-yn-dicycloether), chamazulene (blue in color, arising from the non-volatile proazulene matricin after steam distillation), spathulenol

**Flavonoids:** flavone glycosides; aglycones apigenin, luteolin, chrysoeriol, chief glycosides apigenin-7-O-glucoside, apigenin glucoside acetate,--flavonol glycosides, aglycones including quercetin, isorhamnetin, patuletin, for example rutin, hyperoside

**Unbound, Highly Methoxylized Flavonoids:** jaceidin, chrysofenol, chrysofenetin

**Hydroxycoumarins:** including umbelliferone, herniarin

**Mucilages:** (10% in the mucilage ribs, fructans) including rhamnogalacturonane

### EFFECTS

Chamomile has shown wound-healing, antidiarrheal, sedative, and anti-inflammatory properties. Ethanolic extract of Chamomile *matricaria* reduced the symptoms of hemorrhagic cystitis as compared to patients treated with co-trimoxazol (trimethoprim/sulfamethoxazole). Patients receiving Chamomile mouthwash experienced decreased stomatitis.

**Anti-Inflammatory Effects:** Chamazulene exerts anti-inflammatory effects through inhibition of leukotriene B4 formation (Safayhi, 1994). The en-yne dicycloether inhibits degranulation of mast cells to prevent histamine release (Miller, 1996). Apigenin, a flavonoid, effectively blocks intercellular adhesion molecule-1 upregulation and leukocyte adhesion in response to cytokines. This activity is through a mechanism unrelated to free radical scavenging or leukocyte formation (Panes, 1996).

**Anti-Infective Effects:** Antibacterial and antiviral effects have been seen in vitro (Rucker et al, 1989; Vilagines et al, 1985; Suganda et al, 1983). Symptoms of hemorrhagic cystitis were improved by Chamomile in another study (Barsom et al, 1993).

**Antioxidant Effects:** Chamazulene, an extract from *Matricaria chamomilla* and a volatile oil, may have potential anti-oxidant effects. Chamazulene exerts antioxidant effects through inhibition of lipid peroxidation (Rekka, 1996). Chamazulene also blocks chemical peroxidation of arachidonic acid for antioxidant and anti-inflammatory effects (Safayhi, 1994).

**Antineoplastic Effects:** Apigenin applied topically has effects on skin tumorigenesis through inhibition of skin papillomas and a tendency to decrease the conversion of papillomas to carcinomas (Li, 1996; Wei, 1990). Apigenin inhibits UV-induced tumorigenesis when applied topically via G2/M and G1 cell-cycle arrest in keratinocytes (Lepley, 1996; Lepley, 1997). The chemoprevention mechanisms occur through inhibition of the mitotic kinase activity, perturbation of cyclin B1 levels, and inhibition of protein kinase C (Lepley, 1996; Lin, 1997). Apigenin suppresses transcriptional activation of cyclooxygenase-2 and inducible nitric oxide synthase in macrophages, which is important for the prevention of carcinogenesis and inflammation (Liang, 1999).

**Anxiolytic Effects:** Flavonoids are CNS-active molecules and the chemical modification of the flavone nucleus dramatically increases the...