Chamomile

Matricaria chamomilla

Common names

German chamomile, blue chamomile

Family

Asteraceae (daisy)

Part used

Flowers

Background and traditional uses

Chamomile is an erect, flowering, aromatic annual in the *Asteraceae* family that grows to approximately 30cm tall. It is found growing wild throughout Europe, most prevalently in the wastelands of Croatia and Hungary.[1]

Records of the ancient use of chamomile span from the embalming formulae of ancient Egypt through to the anglo-saxon use of the plant as one of their nine sacred herbs.[1]

Nicholas Culpeper favoured chamomile for the treatment of jaundice, fevers, kidney stones, colic, urine retention and bowel inflammation, and prescribed it both internally and as a topical poultice in cases of sciatica and gout.[2] Chamomile is also a traditionally important remedy for infants and children, prescribed for colic, teething pain and fevers.[3]

Actions

Primary:[1,4-6]

- Anti-inflammatory
- Antidepressant
- Antimicrobial
- Spasmolytic
- Antiulcer
- Anxiolytic
- Carminative
- Nootropic
- Sedative

Secondary:[1,4-6]

- Analgesic
- Antiemetic
- Antioxidant
- Astringent
- Vulnerary

Applications and indications

- To reduce the symptoms of depression in patients with co-morbid anxiety.[7]
- To improve attention in adolescents with ADHD.[8]
- To benefit patients experiencing chronic insomnia.[9]
- To benefit both children and adults experiencing digestive disorders.[10-12]
- To benefit inflammatory skin conditions when applied topically.[1]

Active constituents and pharmacodynamics

Over 120 chemical constituents have been identified in chamomile, and the **sesquiterpenes, flavonoids, coumarins** and **polyacetylenes** are considered the most pharmacologically active in the plant.[13] Of the flavonoids, apigenin has been found to be one of the most effective bioactive constituents,[14] particularly as an anti-inflammatory principle.[1]

Chamomile is also rich in **essential oils**, the main biologically active components being the terpenoids alpha-bisabolol and azulenes, including, but not limited to, chamazulene and acetylene derivatives.[15] These components have been shown to have anti-inflammatory effects in topical animal studies.[1]

The constituent(s) responsible for the sedative activity of chamomile are unclear. However, some preliminary research suggests that apigenin may bind to benzodiazepine receptors to exert an anxiolytic and sedative effect on the central nervous system.[16]

Summary of clinical evidence

Despite the widespread and longstanding use of chamomile in herbal medicine throughout the world, there are very few human studies to support its actions.

Antidepressant and anxiolytic

A randomised, double-blind, placebo-controlled study on 57 participants with anxiety were administered 220mg chamomile in capsule form to the study group once per day in the first week, and twice per day from the second week onwards. The study continued for eight weeks. The Hamilton Rating Scale for Depression (HAM-D) was measured at weeks two, four, six and eight. Subjects who did not log a greater than 50% reduction in scores were, at each measurement, prescribed an increased dose of chamomile or placebo. The study group recorded significantly reduced scores in all participants when compared to the placebo group. The research team noted a trend in greater reduction of HAM-D scores in those with current co-morbid depression. The study suggests that chamomile may provide antidepressant activity in addition to previously observed anxiolytic effects and may be particularly useful for patients experiencing co-morbid anxiety and depression.[7]

Nootropic

Although the sample size was very small, a group of three 14-16-year-old male psychiatric patients with attention-deficit hyperactivity disorder (ADHD) showed significantly improved scores for hyperactivity, inattention and immaturity using the Conners' Parent Rating Scale after taking chamomile at a dose of 100mg three times daily for six weeks. The research team hypothesised that the noradrenalin and serotonin reuptake inhibitor activities of chamomile may have been responsible for the observed improvements.[8]

Sedative

In a randomised, double-blind, placebo-controlled pilot trial on 34 patients experiencing chronic primary insomnia, a 270mg twice daily dose of chamomile yielded modest benefits for the study group in both daytime functioning and sleep diary measures over a 28-day period.[9]

Another placebo-controlled study on 22 healthy volunteers showed that a once-off inhalation of chamomile essential oil produced improved mood and sedation.[17]

In an observational test, 12 patients undergoing a cardiac catheterisation were given a strong cup (two standard teabags infused in 175mL water) of chamomile tea, which led to a deep sleep in 10 of those patients, despite the anxiety and pain usually associated with the procedure.[18]

Animal studies have also shown that both extracts of chamomile and isolated components, such as apigenin, show sedative and anxiolytic activity.[16,19,20]

Gastrointestinal indications

In one study, 104 patients with various gastrointestinal complaints (including gastritis, spasms and flatulence) were treated with a 5mL dose of standardised chamomile preparation daily for six weeks. All patients experienced improved symptoms with 44.2% reporting complete alleviation of symptoms via self-evaluation.[10]

A double-blind trial on the preparation Diarhoesan; a combination of apple pectin and chamomile, on 79 children aged six months to 5.5-years-old, showed a much greater reduction in duration and severity of diarrhoea in the study group when compared to the placebo group.[11] A larger follow-up study on 255 children aged between six months and six years showed a significant reduction in symptomatic severity and stool frequency in the study group when compared to the placebo group.[12]

Dosage summary

Liquid extract (1:2): 20-40mL weekly[21]
Dried herb equivalent: 6-24g daily[1]

Safety information

- Chamomile, prescribed either topically or internally, may cause reactions in patients with a known hypersensitivity to other plants in the *Asteraceae* family.[21]
- Chamomile tea has been known to cause allergic reactions and anaphylaxis in some patients.[22]
- Chamomile may cause eye irritation when applied topically to the area.[23]
- Theoretically, chamomile may potentiate medicines including benzodiazepines, warfarin, non-steroidal anti-inflammatory drugs, and any drugs metabolised by cytochrome 3A4 enzymes.[1]
- Caution is advised in prescribing chamomile to patients under the age of 12 months, as a recent investigation found that 7.5% of 200 evaluated samples of chamomile were contaminated with *Clostridium botulinum* spores which are potentially dangerous for infants.[24]

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MM.2366 BC_0704_CHAMOMILE_MGRAPH_220316_D6

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