



Chamomile

Updated: May 24, 2022.

OVERVIEW

Introduction

Chamomile is an aromatic oil extracted from the flowers or leaves of the daisy-like plants including German chamomile (*Matricaria recutita*) and Roman or English chamomile (*Chamaemelum nobile*). Extracts, oils and teas made from chamomile are used for its soothing qualities as a sedative, mild analgesic and sleep medication. Chamomile has not been implicated in causing serum enzyme elevations or clinically apparent liver injury.

Background

Chamomile (kam' o myle) is the common name for several daisy-like plants, the flowering tops of which are used to make teas, liquid extracts, capsules or tablets. The chamomile most commonly used for its hypnotic and sedative effects is German chamomile (*Matricaria recutita*). Chamomile extracts contain volatile oils, flavonoids and hydroxycoumarins. The flavonoid apeginin has benzodiazepine-like activity and is believed to be the active component of the herbal. Chamomile has multiple biologic effects *in vitro* and *in vivo*, including antiinflammatory, antioxidant, analgesic and sedative effects. In humans, chamomile has been claimed to induce relaxation and sedation and has been used to treat nervousness and insomnia. It is also used for cough, bronchitis, fever, wounds, mouth ulcers, burns, circulatory disorders, dyspepsia, depression and hair loss. Chamomile oils are commonly used in aromatherapy and are found in many skin lotions, creams, soaps and cosmetics. Chamomile is most often used as an herbal tea, but can also be inhaled, applied topically, or taken orally as tablets or capsules usually in combination with other herbals such as passionflower, aloe or valerian or with mild analgesics or antihistamines. Chamomile has not been approved for use in any medical condition in the United States, but it is found in several hundred over-the-counter preparations. Side effects are uncommon may include nausea, dizziness and allergic reactions.

Hepatotoxicity

Despite widescale use, chamomile has not been convincingly linked to instances of clinically apparent liver injury.

Likelihood score: E (unlikely cause of clinically apparent liver injury).

Other Names: German Chamomile, Blue Chamomile, Wild Chamomile, True Chamomile, Manzanilla, Matricaire.

Drug Class: [Herbal and Dietary Supplements](#)

See also Drug Class: [Sedatives and Hypnotics](#), [Herbals](#)

PRODUCT INFORMATION

REPRESENTATIVE TRADE NAMES

Chamomile – Generic (OTC Products)

DRUG CLASS

Herbal and Dietary Supplements

Sedatives and Hypnotics

COMPLETE LABELING

Product labeling at DailyMed, National Library of Medicine, NIH

CHEMICAL FORMULA AND STRUCTURE

DRUG	CAS REGISTRY NUMBER	MOLECULAR FORMULA	STRUCTURE
Chamomile	8002-66-2	Unspecified	No Structure

ANNOTATED BIBLIOGRAPHY

References updated: 24 May 2022

Zimmerman HJ. Unconventional drugs. Miscellaneous drugs and diagnostic chemicals. In, Zimmerman HJ. Hepatotoxicity: the adverse effects of drugs and other chemicals on the liver. 2nd ed. Philadelphia: Lippincott, 1999, pp. 731-4.

(Expert review of hepatotoxicity published in 1999; several herbals are discussed, including comfrey, jin bu huan, germander, chaparral leaf, skullcap and valerian, but not chamomile).

Seeff L, Stickel F, Navarro VJ. Hepatotoxicity of herbals and dietary supplements. In, Kaplowitz N, DeLeve LD, eds. Drug-induced liver disease. 3rd ed. Amsterdam: Elsevier, 2013, pp. 631-58.

(Review of hepatotoxicity of herbal and dietary supplements [HDS]; chamomile is not discussed).

German Chamomile. In, PDR for Herbal Medicines. 4th ed. Montvale, New Jersey: Thomson Healthcare Inc., 2007: pp. 357-62.

(Compilation of short monographs on herbal medications and dietary supplements).

Gyllenhaal C, Merritt SL, Peterson SD, Block KI, Gochenour T. Efficacy and safety of herbal stimulants and sedatives in sleep disorders. Sleep Med Rev. 2000;4:229–251. PubMed PMID: 12531167.

(Review of herbals used for sleep disorders; mentions that the sedative effects of chamomile are mild, but that clinical studies are lacking and allergic reactions to it have been reported).

Wheatley D. Medicinal plants for insomnia: a review of their pharmacology, efficacy and tolerability. J Psychopharmacol. 2005;19:414–21. PubMed PMID: 15982998.

(Review of herbals used to treat insomnia; mentions that chamomile is widely regarded as a mild tranquilizer and sleep inducer; no mention of side effects).

Meolie AL, Rosen C, Kristo D, Kohrman M, Gooneratne N, Aguillard RN, Fayle R, et al; Clinical Practice Review Committee. American Academy of Sleep Medicine. Oral nonprescription treatment for insomnia: an evaluation of products with limited evidence. J Clin Sleep Med. 2005;1:173–87. PubMed PMID: 17561634.

(Systematic review of efficacy of nonprescription treatments for insomnia states that German chamomile is used for restlessness and insomnia, but clinical studies of its efficacy are lacking and its side effects may include vomiting, allergic reactions and drug-herb interactions).

Singh O, Khanam Z, Misra N, Srivastava MK. Chamomile (*Matricaria chamomilla* L.): An overview. *Pharmacogn Rev.* 2011;5:82–95. PubMed PMID: 22096322.

(Review of the history of use, growth and harvest, chemical constituents, and uses of chamomile in cosmetics, perfumes and as a therapeutic agent, having been used in traditional medicine for thousands of years, initially Egypt, Greece and Rome, usually for gastrointestinal complaints as an antispasmodic but also as an antiseptic and analgesic, and more recently for its anxiolytic and sedative properties).

Sarris J, Panossian A, Schweitzer I, Stough C, Scholey A. Herbal medicine for depression, anxiety and insomnia: a review of psychopharmacology and clinical evidence. *Eur Neuropsychopharmacol.* 2011;21:841–60. PubMed PMID: 21601431.

(Overview and summary of herbals used to treat anxiety, depression and insomnia; ranks chamomile as having evidence level "B" for efficacy in anxiety in humans).

Drugs for insomnia. *Treat Guidel Med Lett.* 2012;10(119):57–60. PubMed PMID: 22777275.

(Guidelines for therapy of insomnia; mentions herbal products that are claimed to have sleep inducing effects including valerian root, kava, chamomile tea, passionflower, hops, lemon balm, lavender and skull cap, but that there is no convincing evidence for their efficacy and that the purity of commercially available over-the-counter products is suspect).

Navarro VJ, Barnhart H, Bonkovsky HL, Davern T, Fontana RJ, Grant L, Reddy KR, et al. Liver injury from herbals and dietary supplements in the U.S. Drug-Induced Liver Injury Network. *Hepatology.* 2014;60:1399–408. PubMed PMID: 25043597.

(Among 85 cases of HDS associated liver injury [not due to anabolic steroids] enrolled in a US prospective study between 2004 and 2013, none were attributed to chamomile).

El Mihaoui A, Esteves da Silva JCG, Charfi S, Candela Castillo ME, Lamarti A, Arnao MB. Chamomile (*Matricaria chamomilla* L.): A review of ethnomedicinal use, phytochemistry and pharmacological uses. *Life (Basel).* 2022;12:479. PubMed PMID: 35454969.

(Extensive review of the chemical properties and activities of chamomile in vitro and in vivo and the basis of claims that it has anti-spasmodic, anti-bacterial, anti-viral, anti-fungal, anti-inflammatory, anti-neoplastic, immunomodulatory and anxiolytic activity; no discussion of its toxicity).

Seeff LB, Bonkovsky HL, Navarro VJ, Wang G. Herbal products and the liver: a review of adverse effects and mechanisms. *Gastroenterology.* 2015;148:517–532.e3. PubMed PMID: 25500423.

(Extensive review of herbal associated liver injury does not mention chamomile).

Brown AC. Liver toxicity related to herbs and dietary supplements: Online table of case reports. Part 2 of 5 series. *Food Chem Toxicol.* 2017;107:472–501. PubMed PMID: 27402097.

(Description of an online compendium of cases of liver toxicity attributed to HDS products does not mention chamomile).

Medina-Caliz I, Garcia-Cortes M, Gonzalez-Jimenez A, Cabello MR, Robles-Diaz M, Sanabria-Cabrera J, Sanjuan-Jimenez R, et al; Spanish DILI Registry. Herbal and dietary supplement-induced liver injuries in the Spanish DILI Registry. *Clin Gastroenterol Hepatol.* 2018;16:1495–1502. PubMed PMID: 29307848.

(Among 856 cases of hepatotoxicity enrolled in the Spanish DILI Registry between 1994 and 2016, 32 were attributed to herbal products, the most frequent cause being green tea [n=8] and Herbalife products [n=6], while none were attributed to chamomile).

Bessone F, García-Cortés M, Medina-Caliz I, Hernandez N, Parana R, Mendizabal M, Schinoni MI, et al. Herbal and dietary supplements-induced liver injury in Latin America: experience from the LATINDILI Network. *Clin Gastroenterol Hepatol*. 2022;20:e548–e563. PubMed PMID: 33434654.

(Among 367 cases of hepatotoxicity enrolled in the Latin American DILI Network between 2011 and 2019, 29 [8%] were attributed to herbal products, the most frequent being green tea [n=7], Herbalife products [n=5] and garcinia [n=3], while none were attributed to chamomile).

Ballotin VR, Bigarella LG, Brandão ABM, Balbinot RA, Balbinot SS, Soldera J. Herb-induced liver injury: Systematic review and meta-analysis. *World J Clin Cases*. 2021;9:5490–5513. PubMed PMID: 34307603.

(Systematic review of the literature on herb induced liver injury identified 446 references describing 936 cases due to 79 different herbal products, the most common being He Shou Wu [91], green tea [90] Herbalife products [64], kava [62 and greater celandine [48]; mentions that there is one case report of sinusoidal obstruction syndrome attributed to chamomile).