



# HerbClip™

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**File: ■ Chamomile (*Matricaria recutita* syn. *M. chamomilla*, Asteraceae)**  
**■ Therapeutic Effects**  
**■ Systematic Review**

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**RE: Various Therapeutic Effects of Chamomile Evident in Systematic Review**

Miraj S, Alesaeidi S. A systematic review study of therapeutic effects of *Matricaria recutita* [sic] chamomile (chamomile). *Electron Physician*. 2016;8(9):3024-3031.

These authors, from two medical schools in Iran, conducted a systematic review of the chemical compounds and traditional uses of chamomile (*Matricaria recutita* syn. *M. chamomilla*, Asteraceae), often referred to as German chamomile, by searching PubMed, Medline, Web of Science, and IranMedex databases. Of the 87 references they identified, 69 studies were accepted for further screening and met the authors' inclusion criteria, which called for full-text articles written in English mainly during 1990-2016 and reporting therapeutic effects of chamomile. Included were reports of clinical trials, in vitro, in vivo, and meta-analyses, and review articles. The quality of each article was assessed based on the authors' checklist used to screen the title, abstract, introduction, methods, results, discussion, and conclusion. After screening for quality, the authors identified 56 articles for further analysis.

In one study,<sup>1</sup> the antibacterial properties of chamomile extract (CE) were examined by using a green synthesis technique, showing that CE consisted of nanometer structures. Of those, silver nanoparticles (AgNPs)/CE exhibited five times higher antibacterial activity compared with CE AgNPs/G (glucose). Results of an in vitro and in vivo study revealed that chamomile's wound-healing activity was achieved through mucous tissue formation and not the presence of necrosis and reposition of collagen fibers.<sup>2</sup>

The antioxidant activity of chamomile was evident in several cited studies. Investigators compared the antioxidant activity of the leaf and flowers of feverfew (*Tanacetum parthenium*, Asteraceae), chamomile, and marigold (*Calendula officinalis*, Asteraceae) and found that extracts from flower heads and leaves of chamomile are the richest source of antioxidant activity. Among the chemical compounds, bisabolol and chamazulene exhibited the highest antioxidant properties.<sup>3</sup> Investigators who conducted an animal study report that a chamomile decoction extract inhibited the production of reactive oxygen species and protected against hematological parameters of oxidation.<sup>4</sup>

A clinical study examining the effects of chamomile on systemic inflammation reported improved mechanical joint function and reduced knee and lower back pain but no significant anti-inflammatory effects.<sup>5</sup> In another clinical study, herbal mouth rinses containing CE exhibited beneficial antimicrobial and anti-inflammatory activity.<sup>6</sup> The compound responsible for chamomile's anti-inflammatory effects is apigenin, a flavonoid mostly found in its glycosylated form, apigenin-7-glucoside (APG), in natural sources, say the authors.

In a clinical trial of women following childbirth, chamomile tea proved effective in reducing depression and improving sleep problems.<sup>7</sup>

Guimarães et al. reported that chamomile's compounds luteolin and apigenin had a high capacity to develop new blood vessels.<sup>8</sup>

In rats, the subacute pretreatment with a chamomile decoction extract demonstrated a potential hepatoprotective effect against ethanol-induced oxidative stress.<sup>9</sup>

The antibacterial effect of chamomile fractions was evaluated against two Gram-negative bacteria; the investigators reported that such an antibacterial effect was due to chamomile's main essential oil components, including coumarin, flavonoids, phenolic acids, and fatty acids.<sup>10</sup>

Weidner et al. reported on the efficacy of chamomile flower extract in treating and preventing type 2 diabetes mellitus; the strong synthetic antidiabetic activity was exhibited through modulation of peroxisome proliferator-activated receptors (PPARs), which are key regulators in various pathophysiological processes related to energy metabolism, and other factors.<sup>11</sup> Other studies support the antihyperglycemic effects of chamomile.

In additional studies, chamomile was shown to have antidiarrheal and anticarcinogenic properties and to be beneficial in treating symptoms of premenstrual syndrome, gastrointestinal disorders, and osteoarthritis.

The findings of this study indicate that this plant "is widely used for therapeutic and nontherapeutic purposes that trigger its significant value. Various combinations and numerous medicinal properties of its extract, oil, and leaves demand further studies about other useful and unknown properties of this multipurpose plant," write the authors.

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—*Shari Henson*

#### **References**

<sup>1</sup>Parlinska-Wojtan M, Kus-Liskiewicz M, Depciuch J, Sadik O. Green synthesis and antibacterial effects of aqueous colloidal solutions of silver nanoparticles using camomile terpenoids as a combined reducing and capping agent. *Bioprocess Biosyst Eng.* 2016;39(8):1213-1223.

<sup>2</sup>Motealleh B, Zahedi P, Rezaeian I, Moghimi M, Abdolghaffari AH, Zarandi MA. Morphology, drug release, antibacterial, cell proliferation, and histology studies of chamomile-loaded wound dressing mats based on

electrospun nanofibrous poly( $\epsilon$ -caprolactone)/polystyrene blends. *J Biomed Mater Res B Appl Biomater*. 2014;102(5):977-987.

<sup>3</sup>Agatonovic-Kustrin S, Babazadeh Ortakand D, Morton DW, Yusof AP. Rapid evaluation and comparison of natural products and antioxidant activity in calendula, feverfew, and German chamomile extracts. *J Chromatogr A*. 2015;1385:103-110.

<sup>4</sup>Jabri MA, Sani M, Rtibi K, et al. Chamomile decoction extract inhibits human neutrophils ROS production and attenuates alcohol-induced haematological parameters changes and erythrocytes oxidative stress in rat. *Lipids Health Dis*. 2016;15:65. doi: 10.1186/s12944-016-0233-4.

<sup>5</sup>Drummond EM, Harbourne N, Marete E, Jacquier JC, O'Riordan D, Gibney ER. An in vivo study examining the antiinflammatory effects of chamomile, meadowsweet, and willow bark in a novel functional beverage. *J Diet Suppl*. 2013;10(4):370-380.

<sup>6</sup>Batista ALA, Lins RDAU, de Souza Coelho R, do Nascimento Barbosa D, Moura Belém N, Alves Celestino FJ. Clinical efficacy analysis of the mouth rinsing with pomegranate and chamomile plant extracts in the gingival bleeding reduction. *Complement Ther Clin Pract*. 2014;20(1):93-98.

<sup>7</sup>Chang SM, Chen CH. Effects of an intervention with drinking chamomile tea on sleep quality and depression in sleep disturbed postnatal women: a randomized controlled trial. *J Adv Nurs*. 2016;72(2):306-315.

<sup>8</sup>Guimarães R, Calhela RC, Froufe HJ, et al. Wild Roman chamomile extracts and phenolic compounds: enzymatic assays and molecular modelling studies with VEGFR-2 tyrosine kinase. *Food Funct*. 2016;7(1):79-83.

<sup>9</sup>Sebai H, Jabri MA, Souli A, et al. Chemical composition, antioxidant properties and hepatoprotective effects of chamomile (*Matricaria recutita* L.) decoction extract against alcohol-induced oxidative stress in rat. *Gen Physiol Biophys*. 2015;34(3):263-275.

<sup>10</sup>Móricz AM, Ott PG, Alberti A, et al. Applicability of preparative overpressured layer chromatography and direct bioautography in search of antibacterial chamomile compounds. *J AOAC Int*. 2013;96(6):1214-1221.

<sup>11</sup>Weidner C, Wowro SJ, Rousseau M, et al. Antidiabetic effects of chamomile flowers extract in obese mice through transcriptional stimulation of nutrient sensors of the peroxisome proliferator-activated receptor (PPAR) family. *PLoS One*. 2013;8(11):e80335. doi: 10.1371/journal.pone.0080335.

Referenced article can be accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5074766/>.

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