ROMAN CHAMOMILE MONOGRAPH

Chamaemelum nobile (L.) All.

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Roman chamomile

Chamaemelum nobile L. All.

BOTANICAL INFORMATION

Common names: Roman chamomile

Scientific name: *Chamaemelum nobile* (L.) All.

Synonyms: *Anthemis nobilis* L.

Botanical family: Asteraceae syn. Compositae

Conservation status: Least concern[1]

Description: Roman chamomile is a low-growing evergreen perennial of the Asteraceae family native to North Africa and western Europe. *Chamaelmelum nobile* was formerly classified by the Latin name *Anthemis nobilis*. *C. nobile* forms a spreading mat of aromatic foliage that grows 3-6" tall with decumbent stems spreading 12" wide. The flowers, yellow-centered with daisy-like white rays, bloom throughout the summer and into early fall. The foliage is tufted, creeping, and redolent of apples when bruised.[2]

Roman chamomile is greyish-green in color, with fine, thread-like leaves that give the whole plant a feathery appearance. Blooms are borne singly on long, erect stalks that droop when in bud. The fruit is small and dry, and as it matures it increases the conical appearance of the center of the flower. Roman chamomile thrives in dry, sandy soil in full sun to partial shade.[3]

Chamaemelum nobile was historically noted for its distinct apple scent. The Greeks named it "ground apple" -- kamai (on the ground) and melon (apple); the Spanish called it *manzanilla*, meaning "little apple." It was used in the Middle Ages as an aromatic strewing herb, and planted as ground cover on green walks in gardens. Chamomile thrives underfoot, a commonly known quality of the plant articulated in this verse by Maud Grieve's "A Modern Herbal,"

Like a camomile bed
The more it is trodden
The more it will spread

Ethnobotany: Chamomile was thought of as the "Plant's Physician," and sowed in gardens to heal sickly plants.[4]

C. nobile is one of the earliest documented botanicals used for medicinal purposes. In traditional medicine, it was used topically to treat wounds, irritations, and infections. Taken internally, it calmed the nerves, promoted sleep, and eased gastrointestinal upset.[5]

History of Roman chamomile essential oil: from 'The Volatile Oils' by Gildemeister and Hoffman 1913

Owing to the similarity of some of the species of *Anthemis*, *Chrysanthemum* and *Matricaria*, it can no longer be determined which were cultivated by the Greeks and Romans and used by them. Nor is it possible to ascertain which species of the above genera is implied whenever *Anthemis* is used in the writings of Dioscorides, Pliny, Tragus, and other authors of the time. According to Gesner, in *De Hortis Germaniae liber recens*, published in 1561, Roman chamomile was introduced into France and Germany from Spain. *Anthemis nobilis*, L., however, received more consideration, in England, in the southern part of which it was cultivated and used medicinally. Even during the 16th and 17th centuries the several chamomiles were not kept separate in literature, a condition that apparently also prevailed in practice.

Hieronymus Bock, in '*De strirpium maxime earum quae in Germania mostra nascuntar commentarium libri tres'* / 1552, who lived during the first half of the 16th century, called the plant *Chamomilla nobilis*; whereas Joachim Camerarius, who lived during the second half of the same century called it Roman chamomile (1588). In the treatises on distillation of the 16th century the common chamomile (*most likely Matricaria recutita) seems to have been greatly preferred to the Roman chamomile.

Side by side with *Oleum chamomillae*, distilled oil of Roman chamomile was first mentioned in the drug ordinance of Frankfurt of 1587.[6]

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From: *The National Dispensatory* 3rd edition 1884
by Alfred Stille, M.D., L.L.D. and John M. Maisch, Phar. D.[7]

Oleum Anthemidis, Br. - Oil of Chamomile
Oleum chamomillae romanae - Essence de camomille romaine, Fr.; *Romischkamillenol*, G.
Preparation: The volatile oil is obtained from the flowers of *Anthemis nobilis*, Linn. (nat. ord. Compositae), by distillation with water. The yield is variable, between 1/5 to 1/2 percent.
Medical action and uses: Oil of chamomile is a stimulant and antispasmodic, and is used to allay vomiting and relieve flatulent colic and to modify the irritant action of cathartics in pill or mixture. It is often added to liniments used for sprains, rheumatic pains, etc. **Dose:** from 1 to 5 drops (Gm. 0.05-0.30).

EXTRACTION INFORMATION

Country of origin:	Italy, France, United States, Hungary, Chile, Germany
Part of plant used:	Flowers
Extraction method:	Steam distillation
Essential oil yield:	0.6-2.4%
Color of oil:	Yellow to clear

MANUFACTURING INFORMATION

CAS number: 84649-86-5 / 8015-92-7
EC number: 283-467-5
INCI name: Anthemis Nobilis Flower Oil
Cosing (functions): Fragrance, Perfuming, Skin conditioning
Fragrance allergens: limonene
FDA regulation: FDA 21 CFR 182.20 (GRAS)

AROMATIC CHEMISTRY

Twenty-eight to thirty-one unique components make up 98% of the essential oil of Roman chamomile. Core components include a mix of unique ester components with iso-butyl angelate (32.1-36%), 2-methylbutyl angelate (16.2-20.3%), iso-amyl-angelate (15.5 - 20.5%) and iso-butyl butyrate (5.1-6.2%). Other components include:

Monoterpenes (approximately 4%) α-pinene (1.2-10%), β-pinene (0.2-10%), α-terpene (0-10%), sabinene (0-10%), camphene (0-0.8%), myrcene (0-1.9%), γ-terpinene (0-0.5%), ρ-cymene (<0.5%)

Sesquiterpenes: β-selinene, sabinene (0-10%), α- and β-caryophyllene (0-10%), chamazulene, copaene (0-0.5%), β-copaene, δ-cadinene, bisabolene (up to 4.18%)
Ketones: pinocarvone (2 -13%)
Esters (upwards of 80%): **iso-butyl angelate** (32.1-38.5%), iso-butyl butyrate (5.1-6.2%), **iso-amyl-angelate** (15.5 - 20.5%), 2-butenyl angelate (7.9-8.4%), methyl isobutyrate (7-8%), methylbutyl angelate (13-20.3%), **2-methylbutyl angelate** (16.2-20.3%), isobutyl isobutyrate (5.3%), methyl 2-methylbutyrate (1.9%), 2-methylbutyl-2-methylbutyrate (1.2%) and 2-methylbutyl acetate (1.2%) and more.[8,9]

SAFETY INFORMATION

- **Cautions:** Despite reports of skin reactions and dermatitis from topical use of chamomile, the likelihood of chamomile preparations causing a contact allergy is low. However, people with known sensitivities to other members of the Asteraceae (Compositae) family (including ragweed, daisies, and chrysanthemums) may want to avoid topical application of chamomile or chamomile products.[10]
- If concerned, you may choose to perform a patch test on individuals prone to hypersensitivities, especially if they are sensitive to ragweed or other members of the Asteraceae (Compositae) family.

THERAPEUTIC ACTIONS

System	**Action**
Skin	**antipruritic**, vulnerary
Musculoskeletal	**Analgesic**[11]
Digestive	digestive
Urinary	antidiuretic[12]
Immune	febrifuge
Nervous/Emotion	**anxiolytic**, **nervine**, **relaxant**, **sedative**[13]
General	**anti-inflammatory**[14], antimicrobial, **antispasmodic**[15]

WESTERN HERBAL ENERGETICS

Western energetics: cooling
Tissue states: irritation, tension, laxity

SYSTEM AFFINITIES

Digestive, Skin, Nervous

BLENDING INFORMATION

Aroma description: Sweet, fruity, apple-like, strong
Blending factor: 1 - 2
Notes: Mid to top
Blends well with: Ammi visnaga, Angelica root, carrot seed, clary sage, German chamomile, katrafay, lavender, sweet marjoram, mandarin, melissa, turmeric
Substitutions: Lavender, sweet marjoram, melissa, German chamomile, cape chamomile

CORE INDICATIONS

General: Earache (place one to two drops of Roman chamomile and one to two drops of *Helichrysum italicum* just behind the ear before bed - can dilute 1:1 or 1:2 (vegetable oil: essential oil). Toothache, teething (best to use hydrosol or German chamomile tea). (C+++)

Digestive system: Indigestion, colic, stress-related digestive upset, hemorrhoids (sitz baths with *Chamaemelum nobilis, Salvia sclarea*, and *Cupressus sempervirens*), intestinal parasites (oral), bloating, flatulence, digestive spasms. (C+++, I+++, O+++)

Musculoskeletal system: Spasms, cramps, plantar fasciitis, tendonitis, fibromyalgia, carpal tunnel syndrome, bursitis, restless leg syndrome. Relieves muscle tension. (C+++, I++, D+)

Nervous system: Insomnia; headache or migraine triggered by stress; hyperactivity in children. Particularly good for symptoms or conditions which manifest in response to stress. Nervous shock, stress, anxiety, insomnia. (I+++, C+++, D+++, O++)

Reproductive and Endocrine systems: Dysmenorrhea, PMS, irregular periods, sore breasts. Postpartum perineal healing (C+++, I+++, D++, Fb+)

Skin: Inflamed skin conditions: dermatitis, eczema, psoriasis, hives. Broken capillaries, acne, fungal infections, skin ulcers, slow-healing wounds, razor burn, itchy skin conditions. Abscesses (warm or hot compresses). (C+++)

Psyche/emotion: Use for an overactive mind, anger, sensitive people who feel misunderstood or badly hurt, frustration, agitation, nervous stress, hyperactivity in children, stress-related conditions, and anxiety. (I+++, D+++, O+)

Ayurveda: May be beneficial for pitta mental states in rajasic mode, presenting anger, recklessness, impulsiveness, and aggression. Energetically cooling. Use for imbalances of vata resulting in anxiety and nervousness.

CODES:

O - Oral	C - Cutaneous pathway (dermal/skin)
D - Diffusion	I - Inhalation
RS - Rectal suppository	Sp - Spritzer/Spray
VP - Vaginal pessary	SI - Steam inhalation
Sz - Sitz bath	FB - Foot bath

+++ - highly recommended, ++ - recommended, + - supportive

RESEARCH

Human Studies

- Massage with or without Roman chamomile essential oil **reduces anxiety** in cancer patients in a palliative care setting. Massage with Roman chamomile may **increase quality of life**.

  In a small study designed to test the effects of massage alone or aromatherapy massage using Roman chamomile essential oil on cancer patients in a palliative care setting. Eighty-seven patients completed the study. Each patient was allocated to one of two groups and received three full body massages over 3 consecutive weeks. The Roman chamomile group received massage with sweet almond oil and Roman chamomile oil (dilution not specified), the control group received massage with sweet almond oil only. Although both massage and massage with Roman chamomile proved effective at reducing anxiety and increasing relaxation. One significant difference that occurred post test: patients in the Roman chamomile group had significantly better quality of life, with greater improvement in their physical and psychological symptoms then patients in the almond oil only group.[16]

In Vitro

- Roman chamomile (*Chamaemelum nobile*) essential oil exhibits **antimicrobial activity** against a wide range of bacteria and *Candida albicans*.[17]
- Roman chamomile (*Chamaemelum nobile*) essential oil exhibits **smooth muscle relaxant** activity.[18]

References:

[1] Khela, S. (2013). Chamaemelum nobile. The IUCN Red List of Threatened Species 2013: e.T202952A2758213. http://dx.doi.org/10.2305/IUCN.UK.2013-2.RLTS.T202952A2758213.en. Downloaded on 18 February 2019.

[2] *Chamaemelum nobile*. (n.d.). Missouri Botanical Garden. Retrieved August 24, 2020, from http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=b144

[3] Al-Snafi, A. E. (2016). Medical Importance of Anthemis nobilis (Chamaemelum nobile)—A Review. *Asian journal of pharmaceutical science & technology*, *6*(2), 89–95.

[4] Grieve, M., Leyel, C. F., & Marshall, M. (1982). *A modern herbal: The medicinal, culinary, cosmetic and economic properties, cultivation and folk-lore of herbs, grasses, fungi, shrubs & trees with all their modern scientific uses*. New York: Dover Publications.

[5] Srivastava, J. K., Shankar, E., & Gupta, S. (2010). Chamomile: A herbal medicine of the past with bright future. *Molecular medicine reports*, *3*(6), 895–901. https://doi.org/10.3892/mmr.2010.377 Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2995283/

[6] Gildemeister, E. & Hoffmann, Fr. (1913). *The Volatile oils*. London, England: Longmans, Green, and Co.

[7] Stille, A. & Maisch, J.M. (1884). *The national dispensatory*. Philadelphia, PA: Henry C. Lea's Son & Co.

[8] Lawrence, B. 1989 and Vaverkova, et al. (2011) and European Medicines Agency/HMPC 2011.

[9] Antonelli, A. & Fabbri, C. (1998). Study on Roman chamomile (Chamaemelum nobile L. All.) oil. *Journal of essential oil research, 10*(5), 571-574. doi: 10.1080/10412905.1998.9700974

[10] Mills, S and Bone K. (2000). *Principles and Practice of Phytotherapy*. London, UK: Churchill Livingstone.

[11] Haas, M. (2004). *Quick reference guide for 114 important essential oils*. San Rafael, CA: Terra Linda Scent.

[12] Rossi, T., Melegari, M., Bianchi, A., Albasini, A., & Vampa, G. (1988). Sedative, anti-inflammatory and anti-diuretic effects induced in rats by essential oils of varieties of Anthemis nobilis: a comparative study. *Pharmacological research communications*, *20 Suppl 5*, 71–74. https://doi.org/10.1016/s0031-6989(88)80844-0

[13] Rossi, T., Melegari, M., Bianchi, A., Albasini, A., & Vampa, G. (1988). Sedative, anti-inflammatory and anti-diuretic effects induced in rats by essential oils of varieties of Anthemis nobilis: a comparative study. *Pharmacological research communications*, *20 Suppl 5*, 71–74. https://doi.org/10.1016/s0031-6989(88)80844-0

[14] IBID

[15] Sándor, Z., Mottaghipisheh, J., Veres, K., Hohmann, J., Bencsik, T., Horváth, A., Kelemen, D., Papp, R., Barthó, L., & Csupor, D. (2018). Evidence Supports Tradition: The *in Vitro* Effects of Roman Chamomile on Smooth Muscles. *Frontiers in pharmacology*, *9*, 323. https://doi.org/10.3389/fphar.2018.00323 Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5897738/

[16] Wilkinson, S., Aldridge, J., Salmon, I., Cain, E., & Wilson, B. (1999). An evaluation of aromatherapy massage in palliative care. *Palliative medicine*, *13*(5), 409–417. https://doi.org/10.1191/026921699678148345

[17] Bail, S., Buchbauer, G., Jirovetz, L., Denkova, Z., Slavchev, A., Stoyanova, A., Schmidt, E., & Geissler, M. (2009). Antimicrobial activities of Roman chamomile oil from France and its main compounds. *Journal of essential oil research, 21*(3), 283-286. https://doi.org/10.1080/10412905.2009.9700171

[18] Sándor, Z., Mottaghipisheh, J., Veres, K., Hohmann, J., Bencsik, T., Horváth, A., ... Csupor, D. (2018). Evidence supports tradition: The in vitro effects of Roman chamomile on smooth muscles. *Frontiers in pharmacology*. https://doi.org/10.3389/fphar.2018.00323