



EUROPEAN MEDICINES AGENCY  
SCIENCE MEDICINES HEALTH

5 April 2016  
EMA/HMPC/144093/2015  
Committee on Herbal Medicinal Products (HMPC)

## List of references supporting the assessment of *Helichrysum arenarium* (L.) Moench, flos

Final

**The European Medicines Agency acknowledges that copies of the underlying works used to produce this monograph were provided for research only with exclusion of any commercial purpose.**

Albayrak S, Aksoy A, Sađdic O, Budak U. Phenolic compounds and antioxidant and antimicrobial properties of *Helichrysum* species collected from eastern Anatolia, Turkey. *Turk J Biol* 2010a, 34:463-473

Albayrak S, Aksoy A, Sagdic O, Hamzaoglu E. Compositions, antioxidant and antimicrobial activities of *Helichrysum* (Asteraceae) species collected from Turkey. *Food Chem* 2010b, 119:114–122

Appendino G, Ottino M, Marquez N, Bianchi F, Giana A, Ballero M, *et al.* Arzanol, an Anti-inflammatory and Anti-HIV Phloroglucinol  $\alpha$ -Pyrone from *Helichrysum italicum* ssp. *Microphyllum*. *J Nat Prod* 2007, 70:608-612

Baranchikova OS, Popova NV, Lypovetskyi PV, Tkachenko MF. Study of volatile compounds of *helichrysum arenarium*. In actual questions of development of new drugs. Ministry of Public Health of Ukraine the National University of Pharmacy, April 22-23, 2014, *Kharkiv NUPh* 2014, 24

Bauer J, Koeberle A, Dehma F, Pollastro F, Appendino G, Northoff H, *et al.* Arzanol, a prenylated heterodimeric phloroglucinyl pyrone, inhibits eicosanoid biosynthesis and exhibits anti-inflammatory efficacy in vivo. *Biochem Pharmacol* 2011, 81:259-268

Blaschek W, Ebel S, Hackenthal E, Holzgrabe U, Keller K, Reichling J, *et al.*, editors. HagerROM 2013: Hagers Handbuch der Drogen und Arzneistoffe. *Helichrysum arenarium* (L.) MOENCH. Version 5.0. Springer Medizin Verlag, Heidelberg 2013

Blumenthal M, Busse WR, Goldberg A, Gruenwald J, *et al.*, editors. The Complete German Commission E Monographs. American Botanical Council, Austin Texas 1998, 198-199

Bryksa-Godzisz M, Węglarz Z, Przybył J. Phenolic compounds in yellow everlasting (*Helichrysum arenarium* (L.) Moench) growing wild in the middle part of the Bug valley. *Herba Pol* 2006, 52(4):26-31



- Clapham AR, Tutin TG, Heywood VH, Burges NA, Moore DM, Valentine DH, *et al.*, editors. Flora Europaea. Vol 4. Cambridge University Press, London 1976, 128–131
- Czinner E, Kéry Á, Hagymási K, Blázovics A, Lugasi A, Szőke E, *et al.* Biologically active compounds of *Helichrysum arenarium* (L.) Moench. *Eur J Drug Metab Pharmacokinet* 1999, 24(4):309-313
- Czinner E, Lemberkovics É, Bihátsi-Karsai É, Vitanyi G, Lelik L. Composition of the Essential Oil from the Inflorescence of *Helichrysum arenarium* (L.) Moench. *J Essent Oil Res* 2000, 12:728-730
- Czinner E, Hagymási K, Blázovics A, Kéry Á, Szőke E, Lemberkovics É. The in vitro effect of *Helichrysi flos* on microsomal lipid peroxidation. *J Ethnopharmacol* 2001, 77:31–35
- Czinner E, Kursinszki L, Baumann D, Hamburger M, Kéry Á, Szőke E, *et al.* Phytochemical study of phenolic compounds from *Helichrysi flos* by LC-DAD-MS, in Natural Products in the New Millennium: Prospects and Industrial Application. Rauter AP, *et al.*, editors. Kluwer Academic Publishers 2002, 99-109
- Davis PH, Kupicha FK. Materials for a Flora of Turkey XXX. Notes From The Royal Botanic Garden [Edinburgh] 1974, 33(2):239-240
- Derkach AI, Komissarenko NF, Chernobai VT. Coumarins of the Inflorescences of *Calendula officinalis* and *Helichrysum arenarium*. *Khimija Prirodnykh Soedinenii* 1986, 6:778
- Dombrowicz E, Świątek L, Kopycki W. Phenolic acids in Inflorescentia *Helichrysi* and *Hieracii pilosellae*. *Pharmazie* 1994, 47(6):469-470
- Elgorashi EE, van Heerden FR, van Staden J. Kaempferol, a mutagenic flavonol from *Helichrysum simillimum*. *Hum Exp Toxicol* 2008, 27:845-849
- Enciklopedja lekarstv i tovarov aptetschnogo assortimenta; Phytohepatol No2, Colagogae species No2. Available at: [www.rlsnet.ru](http://www.rlsnet.ru). Accessed 05/05/2016
- Eroğlu HE, Budak Ü, Hamzaoğlu E, Aksoy A, Albayrak S. *In vitro* cytotoxic effects of methanol extracts of six *Helichrysum* taxa used in traditional medicine. *Pak J Bot* 2010, 42(5):3229-3237
- Farmakopea Polska III. Państwowy Zakład Wydawnictw Lekarskich. Inflorescentia *Helichrysi*. Warszawa 1954, 330-331
- Farmakopea Polska III. Państwowy Zakład Wydawnictw Lekarskich. Species Cholagogae. Warszawa 1954, 569
- Farmakopea Polska IX. *Helichrysi Flos*. Vol 2. Warszawa 2011, 3558-3559
- Farmakopea Polska X. Prezes Urzędu Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych. Species Cholagogae. Vol 2. Warszawa 2014, 4056
- Farmakopea Polska X. Prezes Urzędu Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych. *Helichrysi Flos*. Vol 2. Warszawa 2014, 4039-4040
- Galbany-Casals M, Garcia-Jacas N, Saez L, Benedi C, Susanna A. Phylogeny, biogeography, and character evolution in Mediterranean, Asiatic, and Macaronesian *Helichrysum* (Asteraceae, Gnaphalieae) inferred from nuclear phylogenetic analyses. *Int J Plant Sci* 2009, 170(3):365-380
- Gradinaru AC, Sillion M, Trifan A, Miron Anca, Aprotosoae AC. *Helichrysum arenarium* subsp. *arenarium*: phenolic composition and antibacterial activity against lower respiratory tract pathogens. *Nat Prod Res* 2014, 28(22):2076-2080

- Gruenwald J, Brendler T, Jaenicke C, editors. PDR for Herbal Medicines. 4th ed. Thomson Healthcare Inc., Montvalle 2007, 465-466
- Jerzmanowska Z. Analiza fitochemiczna kwiatów kocanki. *Acta Pol Pharm* XIII, 301, 1956.
- Jerzmanowska Z, Grzybowska J. Flawonoidy w kwiatach kocanki. *Acta Pol Pharm* 1958, 15(1):13-14
- Judzentiene A, Butkiene R. Chemical Composition of the Essential Oils of Wild. *Helichrysum arenarium* (L.) with Differently Colored Inflorescences from Eastern Lithuania. *J Essent Oil Res* 2006, 18:80-83
- Kažemekaitis A. Änderungen des europäischen Bestandes an Arznei- und Heilpflanzen durch die Erweiterung der Europäischen Union: Einflussmöglichkeiten am Beispiel der baltischen Republik Litauen. Dissertation, Institut für Naturheilkunde, Zürich 2010
- Khristenko LA, Pertsev IM, Salo DP, Negrash AK. Possible use of Arenarin in medicated ophthalmological films. *Khimiko-Farmatsevticheskii Zhurnal* 1977, 11(7):123-127
- Kothavade PS, Nagmoti DM, Bulani VD, Juvekar AR. Arzanol, a Potent mPGES-1 Inhibitor: Novel Anti-Inflammatory Agent. *Scientific World J* 2013, 986429
- Lemberkovics E, Czinner E, Szentmihályi K, Balázs A, Szőke E. Comparative evaluation of Helichrysi flos herbal extracts as dietary sources of plant polyphenols, and macro- and microelements. *Food Chem* 2002, 78:119-127
- Morikawa T, Wang LB, Ninomiya K, Nakamura S, Matsuda H, Muraoka O, et al. Medicinal Flowers. XXX. Eight New Glycosides, Everlastosides F-M, from the Flowers of *Helichrysum arenarium*. *Chem Pharm Bull* 2009, 57(8):853-859
- Muszyński J. Ziółolecznictwo i leki roślinne (Fitoterapia). Państwowy Zakład Wydawnictw Lekarskich. Flos Stoechados, Inflorescentia Helichrysi (F.P.III). ed 4. Warszawa 1954, 68
- Pharmacopoea Helvetica.. Immortelle jaune (fleur d') Helichrysi flos. 11<sup>th</sup> ed. Swissmedic 11.0/CH 2012, 128:313-314
- Radušienė J, Judžentienė A. Volatile composition of *Helichrysum arenarium* field accessions with differently coloured inflorescences. *Biologija* 2008, 54(2):116-120
- Rančić A, Sokovic M, Djokovic D. Chemical Composition and Antimicrobial Activities of Essential Oils of *Myrrhis odorata* (L.) Scop, *Hypericum perforatum* L and *Helichrysum arenarium* (L.) Moench. *J Essent Oil Res* 2005, 17
- Roeske W. Zarys Fitoterapii (Farmakologia i Receptura Ziół Lecznicych). Państwowy Zakład Wydawnictw Lekarskich. Flos Helichrysi (Flos Stoechados). Warszawa 1955, 106
- Rozporządzenie Ministra Opieki Społecznej z dnia 24 czerwca 1938 r. o określeniu cen aptecznych. [Polish]
- Rozporządzenie Ministra Zdrowia z dnia 5 stycznia 1949 r. o zmianie rozporządzenia Ministra Spraw Wewnętrznych z dnia 28 sierpnia 1930 r. o wydawaniu z aptek środków lekarskich. [Polish]
- Sani AM. Inhibitory Effect of *Helichrysum arenarium* Essential Oil on the Growth of Food Contaminated Microorganisms. *International Journal of Biological, Veterinary, Agricultural and Food Engineering* 2014, 8(8):795-799
- Sroka Z, Kuta I, Cisowski W, Drys A. Antiradical Activity of Hydrolyzed and Non-hydrolyzed Extracts from *Helichrysi inflorescentia* and its Phenolic Contents. *Z Naturforsch* 2004, 59:363-367

- Szadowska A. [Pharmacological action of galenicals and flavonoids isolated from *Helichrysum arenarium* L]. *Acta Pol Pharm* 1962, 19(6):465-479 [Polish]
- Tepe B, Sokmen M, Akpulat HA, Sokmen A. In vitro antioxidant activities of the methanol extracts of four *Helichrysum* species from Turkey. *Food Chem* 2005, 90:685-689
- Tswetki bessmertnika pescanego, list of preparations available at: [www.prodenas.ru](http://www.prodenas.ru). Accessed 05/05/2016
- Turova AD, Sapozhnikova EN. Lekarstvennyje rastenija SSSR i ich primenenije. Ed 4. Moskva-Medicina 1984, 200-201 [Russian]
- Vrkoč J, Dolejš L, Sedmera P, Vašičkova S, Šorm F. The structure of Arenol and Homoarenol,  $\alpha$ -Pyrone Derivatives from *Helichrysum arenarium* (L.) Moench. *Tetrahedron Lett* 1971, 3:247-250
- Wang LB, Gao HY, Morikawa T, Sun BH, Huang J, Yoshikawa M, *et al.* Flavonones from *Helichrysi flos* syn. *Chin J Nat Med* 2009a, 7(5):357-360
- Wang LB, Morikawa T, Gao HY, Huang J, Yoshikawa M, Wu LJ. Isolation and identification of chemical constituents of flavones from *Helichrysi arenarii*. *Journal of Shenyang Pharmaceutical University* 2009b, 10
- Vidal-Ekspert database. Available at: [www.webvidal.ru](http://www.webvidal.ru). Accessed 27/04/2016
- WHO monographs on medicinal plants commonly used in the Newly Independent States (NIS). *Flos Helichrysi arenarii*. World Health Organisation. Geneva 2010, 175-185
- Wichtl M. Herbal drugs and Phytopharmaceuticals: a handbook for practice on scientific basis. Medpharm Scientific Publishers GmbH, Stuttgart 2004, 282-285