



London, 3 July 2008
Doc. Ref: EMEA/HMPC/98716/2008

COMMITTEE ON HERBAL MEDICINAL PRODUCTS (HMPC)

DRAFT

LIST OF REFERENCES FOR ASSESSMENT OF:

Althaeae radix
***Althaea officinalis* L., radix**
(marshmallow root)

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

Alcaraz M.J., Moroney M., Hoult J.R.S. (1989) Effects of hypolaetin- β -O-glucoside and its aglycone in in vivo and in vitro tests for anti-inflammatory agents. *Planta Med.*;55: 107-8

Barnes J, Anderson L., Phillipson D.(2002): *Herbal Medicines: A guide for healthcare professionals* 3rd edition, London: Pharmaceutical Press 2027.

Bäumler S. *Heilpflanzen Praxis Heute*. Elsevier, München 2007:131-132

Beaune A, et al.: Anti-inflammatory experimental properties of marshmallow: its potentiating action on the local effects of corticoids. *Therapie* . 1966;21:341-347.

Blumenthal, M. and W. R. Busse (1998). *The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines*. Austin, American Botanical Council: 167

Blumenthal, M., A. Goldberg and J. Brinckmann (2000). *Herbal Medicine: Expanded Commission E Monographs*. Austin, American Botanical Council: 244-248

Bradley P.R. (ed) *British Herbal Compendium*. Marshmallow root.Vol. 1. BHMA, Bournemouth GB 1992, 151-153

British Pharmaceutical Codex 1949. London: Pharmaceutical Press, 1949: 74 and 1291-1292

Capek P., Rosík J., Kardošová A. et al. (1987) Polysaccharides from the roots of the Marsh Mallow (*Althaea officinalis* L. var. *Robusta*): Structural features of an acidic polysaccharide. *Carbohydr. Res.*; 164: 443-452

Capek P., Toman R., Kardošová A., et al. (1983) Polysaccharides from the roots of the marsh mallow (*Althaea officinalis* L.): Structure of an Arabinan. *Carbohydr. Res.*; 117: 133-140

Capek P., Toman R., Rosík J. et al. (1984) Polysaccharides from the roots of *Althaea officinalis* L.: Structural Faetures of D-Glucans. *Collect. Czech. Chem. Commun.*; 49: 2674-2679

Capek P., Uhrín D., Rosík J. et al. (1988) Polysaccharides from the roots of the marsh mallow (*Althaea officinalis* L., var. *Robusta*): dianhydrides of oligosaccharides of the aldose type. *Carbohydr. Res.*; 182: 160-165

Český lékopis 2005 (Czech Pharmacopoeia 2005)

Deutsches Arzneibuch, 6. Ausgabe, 1926

Deutsches Arzneimittel Codex, 2004: E-020

ESCOPE Monographs (European Scientific Co-operative on Phytotherapy). The Scientific Foundation for Herbal medicinal Products, Exeter. 2nd edition, 2003: 32-35

European Pharmacopoeia 6.0; 2008, 01/2008:1126 corrected 6.0: 2339

Farmakopea Polska wyd VI (2002), *Althaeae sirupus*, 913

Fasse M, et al.: Dry Irritating Cough in Children - a Post-marketing Surveillance Involving Marshmallow Syrup. *Paed* 2005;11: 3-8.

Franz G. (1966) Die Schleimpolysaccharide von *Althaea officinalis* und *Malva silvestris*. *Planta Med.*; 14: 90-110

Franz G. (1989). Polysaccharides in Pharmacy: Current Applications and Future Concepts. *Planta Medica* 55: 493-497

Franz G., Madaus A. (1990) Stabilität von Polysacchariden. *Deutsche Apotheker Zeitung* 130, 40: 2194 - 2199

Gudej J. (1989) Determination of flavonoids in leaves, flowers and roots of *Althaea officinalis* L. *Farm. Pol.*; 46: 153-155

Gudej J. (1991) Flavonoids, Phenolic Acids and Coumarins from the Roots of *Althaea officinalis*. *Planta Med.*; 57: 284-285

Hänzel, R., K. Keller and H. Rimpler. *Hagers Handbuch der Pharmazeutischen Praxis*. 5th edition. Band 4 Drogen A-D. Berlin, Springer Verlag, 1992: 236-238.

Hungarian Pharmacopoeia 6th edition 1970

Iauk L., Lo Bue A.M., Milazzo I., et al (2003) Antibacterial Activity of Medicinal Plant Extracts Against Periodontopathic Bacteria. *Phytother. Res.*; 17: 599-604

Ionkova I. (1992) Alternative sources of biological active substances from *Althaea officinalis* L. var. *Rusalka*. *CR Acad. Bulg. Sci.*; 9: 137-141

Kern W., List P.H., Hörhammer L. *Hagers Handbuch der Pharmazeutischen Praxis*. 4th edition. Band A-AL. Berlin, Springer Verlag, 1969: 1237-1248

Kobayashi A., Hachya A., Ohuchi A. et al. (2002) Inhibitory Mechanism of an Extract of *Althaea officinalis* L. on Endothelin-1-Induced Melanocyte Activation. *Biol. Pharm. Bull.*; 25: 229-234

Madaus G. *Lehrbuch der biologischen Heilmittel*. Band I. Leipzig. 1938: 492-497

Madaus A., Blaschek W., Franz G. *Althaeae radix mucilage polysaccharides*, isolation, characterization and stability [Abstract]. *Pharm. Weekblad Sci. Ed.* 1987; 9: 239

Martindale, The Extra Pharmacopoeia. London: The Pharmaceutical Press 1977

Mascolo, N., M., G. Autore, F. Caposso, A. Menghini and M. P. Fasulo (1987). "Biological Screening of Italian Medical Plants for Anti-inflammatory Activity." *Phytotherapy Research* 1: 28-31

Müller-Limmroth W., Fröhlich H.-H. (1980) Wirkungsnachweis einiger phytotherapeutischer Expektorantien auf den mukoziliären Transport. *Fortschr. Med.*; 98: 95-101

Newall C.A., Anderson L.A., Philipson J.D. *Herbal Medicine: A Guide for Healthcare Professionals*. The Pharmaceuticals Press, London 1996

Ninov S., Ionkova I., Kolev D. (1992) Constituents from roots of *Althaea officinalis* L. var. *Rusalka*, Malvaceae. *Fitoterapia*; 43: 474

NMCD 2008. *Natural Medicines Comprehensive Database*; Stockton, California; <http://www.naturaldatabase.com> 24.1.2008

Nosalová G., Strapková A., Capek P. et al (1992a) Antitussive activity of an α -D-glucan isolated from the root of *Althaea officinalis* L., var. *robusta*. *Pharm. Pharmacol. Lett.*; 2: 195-197

Nosalová G., Strapková A., Kardošová A. et al (1993) Antitussive activity of a rhamnogalacturonan isolated from the roots of *Althaea officinalis* L., var. *Robusta*. *Carbohydr. Chem.*; 12:589-596

Nosalová G., Strapková A., Kardošová A. et al. (1992) Antitussive Wirkung des Extraktes und der Polysaccharide aus Eibisch (*Althaea officinalis* L., var. *robusta*). *Pharmazie*; 47: 224-226

Österreichisches Arzneibuch 1990

PDR 2004. La Gow B. (Ed.). *PDR for Herbal Medicines*. 3rd Ed., Thomson PDR, Montvale 2004, 988 pp

Perez GRM, Zavala SMA, Perez GS, Perez GC: Antidiabetic effect of compounds isolated from plants. *Phytomedicine* 1998;5 : 55-75.

Recio MC, et al.: Antimicrobial activity of selected plants employed in the Spanish Mediterranean Area Part II. *Phytotherapy Res*, 1989;3:77-80

Rosík J., Kardošová R., Toman R., Capek P. (1984) Izolácia a charakterizácia slizov z ibiša lekárskeho (*Althaea officinalis* L.) a slezu lesného maurského (*Malva silvestris* L., ssp. *Mauritiana* (L.) Thell.) *Českoslov. Farm.*; 33: 68-71

Scheffer J., König W. (1991) Einfluß von *Radix althaeae* und *Flores chamomillae* Extrakten auf Entzündungsreaktionen humaner neutrophiler Granulozyten, Monozyten und Rattenmastzellen. In: Abstracts of 3. Phytotherapie-Kongreß, Lübeck-Travemünden, 3-6 October 1991 (Abstract P9)

Schmidgall J., Schnetz E., Hensel A. (2000) Evidence for bioadhesive effects of polysaccharides and polysaccharide-containing herbs in an ex vivo bioadhesion assay on buccal membranes. *Planta Med.* 66: 48-53

Tomoda M. Shimizu N., Oshima Y. et al (1987) Hypoglycemic activity of twenty plant mucilages and three modified products. *Planta Med.*; 53: 8-12

Tomoda M., Kaneko S., Ebashi M. (1977) Plant Mucilages XXIV. Isolation and characterization of a mucous polysaccharide *Althaea-mucilage O*, from the roots of *Althaea officinalis*. *Chem. Pharm. Bull.*; 25: 1357-1362

Tomoda M., Satoh N., Shimada K. (1980) Plant Mucilages XXIV. The Structural Features of Althaea-mucilage O, a Representative Mucous Polysaccharide from the Roots of *Althaea officinalis*. *Chem. Pharm. Bull.*; 28:824-30

Villar A., Gasco M.A., Alcaraz M.J. (1984) Anti-inflammatory and anti-ulcer properties of hypolaetin- β -glucoside a novel plant flavonoid. *J. Pharm. Pharmacol.*; 36: 820-3

Villar A., Gasco M.A., Alcaraz M.J. (1987) Some aspects of the inhibitory activity of hypolaetin- β -glucoside in acute inflammation. *J. Pharm. Pharmacol.*; 39: 502-7

Wagner H., Proksch A. (1985) Immunostimulatory drugs of fungi and higher plants. In: Wagner H., Hikino H., Farnsworth N.R., eds. *Economic and Medicinal Plant Research*. Vol. 1. Academic Press, London 1985: 113-53

WHO (2002). WHO Monographs on Selected Medicinal Plants, vol. 2. World Health Organization, Geneva.: 5-11.

Wichtl 1994. Bisset N.G. (Ed.). Wichtl M. *Herbal drugs and Phytopharmaceuticals*. CRC Press, Stuttgart 1994, 65-66

Yamada H., Nagai T., Cyong J.-C. et al (1985) Relationship between chemical structure and anti-complementary activity of plant polysaccharides. *Carbohydrate Res.*: 144: 101-11