



EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

29 May 2024
EMA/HMPC/765658/2022
Committee on Herbal Medicinal Products (HMPC)

List of references supporting the assessment of *Pelargonium sidoides* DC; *Pelargonium reniforme* Curt., radix

Final - Revision 2

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.

Agbabiaka TB, Guo R, Ernst E. *Pelargonium sidoides* for acute bronchitis: A systemic review and meta-analysis. *Phytomedicine* 2008, 15:378-385

Bachert C, Schapowal A, Funk P, Kieser M. Treatment of acute rhinosinusitis with the preparation from *Pelargonium sidoides* EPs® 7630: a randomized, double-blind, placebo-controlled trial. *Rhinology* 2009, 47:51-58

Beil W, Kilian P. EPs® 7630, an extract from *Pelargonium sidoides* roots inhibits adherence of *Helicobacter pylori* to gastric epithelial cells. *Phytomedicine* 2007, 14:5-8

Bereznoy VV, Riley DS, Wassmer G, Heger M. Efficacy of extract of *Pelargonium sidoides* in children with acute non-group A beta-haemolytic streptococcus tonsillopharyngitis: a randomized, double-blind, placebo-controlled trial. *Altern Ther Health Med* 2003, 9:68-78

BfArM (Bundesinstitut für Arzneimittel und Medizinprodukte). Abwehr von Gefahren durch Arzneimittel, Stufe II - *Pelargonium*-Wurzel-haltige Arzneimittel. 75-3822-V-14588 266223/12 20.06.2012

Bladt S, Wagner H. "Umckaloabo"-Droge der afrikanischen Volksmedizin. *Dtsch Apoth Ztg* 1977, 117:1655-1660

Bladt S, Wagner H. From the Zulu medicine to the European phytomedicine Umckaloabo®. *Phytomedicine* 2007, 14:2-4

Bloch B, Haidvogel M, Heger M. Umckaloabo im Vergleich zu Acetylcystein bei Kindern mit akuter Bronchitis: prospektive, randomisierte, kontrollierte, offene Studie zur Wirksamkeit und Verträglichkeit. *Der Kassenarzt* 1999, 49:46-50

Brendler T, van Wyk BE. A historical, scientific and commercial perspective on the medicinal use of *Pelargonium sidoides* (Geraniaceae). *J Ethnopharmacol* 2008, 119:420-433

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- Butterweck V, Nahrstedt A. What Is the Best Strategy for Preclinical Testing of Botanicals? A Critical Perspective. *Planta Med* 2012, 78:747–754
- Chuchalin AG, Berman B, Lehmacher W. Treatment of acute bronchitis in adults with *Pelargonium sidoides* preparation (EPs® 7630): a randomized, double-blind, placebo-controlled trial. *Explore* 2005, 1:437-445
- Conrad A, Frank U. Extract of *Pelargonium sidoides* (EPs® 7630) displays anti-infective properties by enhanced phagocytosis and differential modulation of host-bacteria interactions. *Planta Med* 2008, 74:682-685
- Conrad A, Hansmann C, Engels I, Daschner FD, Frank U. Extract of *Pelargonium sidoides* (EPs® 7630) improves phagocytes, oxidative burst, and intracellular killing of human peripheral blood phagocytes in vitro. *Phytomedicine* 2007a, 14:46-51
- Conrad A, Jung I, Tioua D, Lallemand C, Carrapatoso F, Engels I, *et al.* Extract of *Pelargonium sidoides* (EPs® 7630) inhibits the interaction of group A-streptococci and host epithelia in vitro. *Phytomedicine* 2007b, 14:52-59
- Conrad A, Kolodziej H, Schulz V. *Pelargonium sidoides*-Extrakt (EPs® 7630): Zulassung bestätigt Wirksamkeit und Verträglichkeit. *Wien Med Wochenschr* 2007c, 157:331-336
- Conrad A, Schulz V. Umckaloabo bei akuter Bronchitis. *Dtsch Apoth Ztg* 2007, 147:87-91
- de Boer HJ, Hagemann U, Bate J, Meyboom HB. Allergic reactions to medicines derived from *Pelargonium* species. *Drug Safety* 2007, 30:677-680
- Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use (as amended). Available at: <https://eur-lex.europa.eu/eli/dir/2001/83/2022-01-01>. Accessed Jan 2023
- Directive 2004/24/EC of the European Parliament and of the Council of 31 March 2004 amending, as regards traditional herbal medicinal products, Directive 2001/83/EC on the Community code relating to medicinal products for human use. Available at: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32004L0024>. Accessed Jan 2023
- Dome L, Schuster R. Umckaloabo – a phytopharmaceutical alternative for treatment of acute bronchitis in childhood? [Umckaloabo – eine phytotherapeutische Alternative bei akuter Bronchitis im Kindesalter?]. *Ärztezeitschrift für Naturheilverfahren* 1996, 37(3):216-222 [in German]
- Dorf Müller A, Jung I, Tioua D, Lallemand C, Engels I, Daschner FD, *et al.* Indirekte antibakterielle Wirkmechanismen des *Pelargonium sidoides*-Wurzelextraktes EPs® 7630: Hemmung der Interaktion von A-Streptokokken und HEp-2-Zellen. *Z Phytother* 2005, 26:S6-S7 [in German]
- Egan D, O'Kennedy R, Moran E, Cox D, Prosser E, Thornes RD. The pharmacology, metabolism, analysis, and applications of coumarin and coumarin-related compounds. *Drug Metab Rev* 1990, 22:503-529
- European Pharmacopoeia 11th ed. *Pelargonium* root. Council of Europe. 01/2024:2264
- Golovatiouk A, Chuchalin AG. Efficacy of an extract from *Pelargonium sidoides* (EPs® 7630) compared to placebo in patients with acute bronchitis. [Wirksamkeit eines Extraktes aus *Pelargonium sidoides* (EPs® 7630) im Vergleich zu Placebo bei Patienten mit akuter Bronchitis] [in German]. In V, Rietbrock N, Roots I, Loew D, editors. *Phytopharmaka* VII. Darmstadt 2002, 3-12
- Gödecke T, Kaloga M, Kolodziej H. A phenol glucoside, uncommon coumarins and flavonoids from *Pelargonium sidoides* DC. *Z Naturforsch B* 2005, 60:677-682

- Gökçe Ş, Dörtkardeşler BE, Yurtseven A, Kurugöl Z. Effectiveness of *Pelargonium sidoides* in pediatric patients diagnosed with uncomplicated upper respiratory tract infection: a single-blind, randomized, placebo-controlled study. *Eur J Pediatr* 2021, 180(9):3019-3028
- Gruenwald J, Graubaum HJ, Busch R. Efficacy and tolerability of a fixed combination of thyme and primrose root in patients with acute bronchitis. A double-blind, randomized, placebo-controlled clinical trial. *Arzneimittelforschung* 2005, 55(11):669-676
- Haidvogel M, Schuster R, Heger M. Acute bronchitis in childhood. Multi-centre study of the efficacy and tolerance of the phytotherapeutic preparation Umckaloabo. [Akute Bronchitis im Kindesalter - Multizenter-Studie zur Wirksamkeit und Verträglichkeit des Phytotherapeutikums Umckaloabo]. *Zeitschrift für Phytotherapie* 1996, 17(5):300-313
- Haidvogel M, Heger M. Treatment effect and safety of EPs® 7630-solution in acute bronchitis in childhood: Report of a multicentre observational study. *Phytomedicine* 2007, 14:60-64
- Heger M, Bereznoy VV. Nicht-streptokokkenbedingte Tonsillopharyngitis bei Kindern: Wirksamkeit eines Extraktes aus *Pelargonium sidoides* (EPs® 7630) im Vergleich zu Placebo. [in German] In: Schulz V, Rietbrock N, Roots I, Loew D, editors. *Phytopharmaka VII-Forschung und klinische Anwendung*. Steinkopff-Verlag, Darmstadt 2002, 13-25
- Helmstädter A. Umckaloabo – Late vindication of a secret remedy. *Pharm Historian* 1996, 26:2-4
- Kamin W, Maydannik VG, Malek FA, Kieser M. Efficacy and tolerability of EPs 7630 in patients (aged 6-18 years old) with acute bronchitis. A randomized, double-blind, placebo-controlled clinical dose-finding study. *Acta Paediatr* 2010a, 99:537-543
- Kamin W, Maydannik VG, Malek FA, Kieser M. Efficacy and tolerability of EPs 7630 in children and adolescents with acute bronchitis: a randomized, double-blind, placebo-controlled multi-center trial with a herbal drug preparation from *Pelargonium sidoides* roots. *J Clin Pharm Ther* 2010b, 48:184-191
- Kamin W, Ilyenko L, Malek F, Kieser M. Treatment of acute bronchitis with EPs 7630: Randomised, controlled trial in children and adolescents. *Pediatr Int* 2012, 54(2):219-226
- Kamin W, Behre U, Helm K, Relling B, Funk P, Malek FA. Safety of *Pelargonium* extract EPs 7630 in young children with acute bronchitis. *Frontiers in Pediatrics* 2023; 11:1107984
- Kardos P, Lehl S, Kamin W, Matthys H. Assessment of the Effect of Pharmacotherapy in Common Cold/Acute Bronchitis – the Bronchitis Severity Scale (BSS). [Beurteilung der Wirksamkeit von Pharmakotherapie bei Erkältungen/akuter Bronchitis: Bronchitis Severity Scale (BSS)]. *Pneumologie* 2014, 68(8):542-546 [in German]
- Kayser O, Kolodziej H. Highly oxygenated coumarins from *Pelargonium sidoides*. *Phytochemistry* 1995, 39:1181-1185
- Kayser O, Kolodziej H. Antibacterial activity of extract and constituents of *Pelargonium sidoides* and *Pelargonium reniforme*. *Planta Med* 1997, 63:508-510
- Kayser O, Kolodziej H, Kiderlen AF. Immunomodulatory principles of *Pelargonium sidoides*. *Phytother Res* 2001, 15:122-126
- Kim CE, Griffiths WJ, Taylor PW. Components derived from *Pelargonium* stimulate macrophage killing of *Mycobacterium* species. *J Appl Microbiol* 2009, 106:1184-1193
- Koch E. Untersuchungen zu möglichen hepatotoxischen Effekten von Umckaloabo®. *Z Phytother* 2006, 27:25

- Koch E, Biber A. Treatment of rats with the *Pelargonium sidoides* extract EPs® 7630 has no effect on blood coagulation parameters or on the pharmacokinetics of warfarin. *Phytomedicine* 2007, 14:40-45
- Koch E, Lanzendörfer-Gossen H, Wohn C. Stimulation of interferon (IFN)-beta synthesis and natural killer (NK) cell activity by an aqueous-ethanolic extract from roots of *Pelargonium sidoides* (Umckaloabo). *Naunyn Schmiedebergs Arch Pharmacol* 2002, 365(1):R75
- Koch E, Wohn C. *Pelargonium sidoides* root extract EPs® 7630 stimulates release of antimicrobial peptides from neutrophil granulocytes in human whole blood. *Planta Med* 2007, 73:846
- Kolodziej H. Traditionally used *Pelargonium* species: chemistry and biological activity of umckaloabo extracts and their constituents. *Curr Topic Phytochem* 2000, 3:77-93
- Kolodziej H. *Pelargonium reniforme* and *Pelargonium sidoides* – their botany, chemistry and medicinal use. In: Lis-Balchin M, editor. Geranium and Pelargonium. Taylor & Francis, London 2002, 262-290
- Kolodziej H. Aqueous ethanolic extract of the roots of *Pelargonium sidoides* – New scientific evidence for an old anti-infective phytopharmaceutical. *Planta Med* 2008, 74:661-666
- Kolodziej H, Burmeister A, Trun V, Radtke OA, Kiderlen AF, Ito H, et al. Tannins and related compounds induce nitric oxide synthase and cytokines gene expressions in Leishmania mayor-infected macrophage-like RAW 264.7 cells. *Bioorg Med Chem* 2005, 13:6470-6476
- Kolodziej H, Kayser O, Radtke OA, Kiderlen AF, Koch E. Pharmacological profile of extracts of *Pelargonium sidoides* and their constituents. *Phytomedicine* 2003, 10:18-24
- Kolodziej H, Kayser O, Tan N. Novel coumarin sulphates from *Pelargonium sidoides*: isolation, structure and synthetic approach. In: Rauter A, Arauja E, Sales F, Justino J, Santos SP, editors. Natural Products in the New Millennium: Prospects and Industrial Application. *Proceedings of the Phytochemical Society of Europe* 2002, 59-64
- Kolodziej H, Kiderlen AF. In vitro evaluation of antibacterial and immunomodulatory activities of *Pelargonium reniforme*, *Pelargonium sidoides* and the related herbal drug preparation EPs® 7630. *Phytomedicine* 2007, 14:18-26
- Kruk A, Piwowarski JP, Pawłowska KA, Popowski D, Granica S. High molecular pyrogens present in plant extracts interfere with examinations of their immunomodulatory properties *in vitro*. *Sci Rep* | 2021, 11:799
- Lake BG. Coumarin metabolism, toxicity and carcinogenicity: relevance for human risk assessment. *Food Chem Toxicol* 1999, 37:423-453
- Latte KP, Kaloga M, Kolodziej H. Reniformin, a unique diterpene ester from the roots of *Pelargonium reniforme*. *Nat Prod Commun* 2007, 2:883-886
- Lehrl S, Matthys H, Kamin W, Kardos P. The BSS - A Valid Clinical Instrument to Measure the Severity of Acute Bronchitis. *J Lung Pulm Respir Res* 2014, 1(3):00016
- Lehrl S, Kardos P, Matthys H, Kamin W. Validation of a Clinical Instrument for Measuring the Severity of Acute Bronchitis in Children - The BSS-ped. *Open Respir Med J* 2018, 12:50-66
- Lewu FB, Grierson DS, Afolayan AJ. Extracts from *Pelargonium sidoides* inhibit the growth of bacteria and fungi. *Pharm Biol* 2006a, 44:279-282
- Lewu FB, Grierson DS, Afolayan AJ. The leaves of *Pelargonium sidoides* may substitute for its roots in the treatment of bacterial infections. *Biol Conserv* 2006b, 128:582-584

- Lizogub VG, Riley DS, Heger M. Efficacy of *Pelargonium sidoides* preparation in patients with the common cold: a randomized, double-blind, placebo-controlled clinical trial. *Explore* 2007, 3:573-584
- Loew D, Koch E. Coumarine- Differenzierte Risikobetrachtung mit dem Beispiel eines pflanzlichen Arzneimittels. *Z Phytother* 2008, 29:28-36 [in German]
- Mativandlela S, Lall N, Meyer J. Antibacterial, antifungal and antitubercular activity of *Pelargonium reniforme* and *Pelargonium sidoides* root extracts. *S Afr J Bot* 2006, 72:232-237
- Matthys H, Eisebitt R, Seith B, Heger M. Efficacy and safety of an extract of *Pelargonium sidoides* (EPs® 7630) in adults with acute bronchitis. *Phytomedicine* 2003, 10:7-17
- Matthys H, Funk P. EPs® 7630 improves acute bronchitic symptoms and shortens time to remission. Results of a randomized, double-blind, placebo-controlled, multicentre trial. *Planta Med* 2008, 74:686-692
- Matthys H, Heger M. Treatment of acute bronchitis in adults with a liquid herbal drug preparation from *Pelargonium sidoides* (EPs® 7630): a randomized, double-blind, placebo-controlled, multicentre study. *Curr Med Res Opin* 2007a, 23:323-331
- Matthys H, Heger M. EPs® 7630 solution – an effective therapeutic option in acute and exacerbating bronchitis. *Phytomedicine* 2007b, 14:65-68
- Matthys H, Kamin W, Funk P, Heger M. *Pelargonium sidoides* preparation (EPs® 7630) in the treatment of acute bronchitis in adults and children. *Phytomedicine* 2007, 14:69-73
- Matthys H, Kamin W. EPs 7630, a Herbal Drug Preparation for Treating Acute Bronchitis in Children and Adults. *InTechOpen* 2011. Available at: <http://www.intechopen.com/books/approaches-to-bronchitis/eps-7630-a-herbal-drug-preparation-for-treating-acute-bronchitis-in-children-and-adults>. Accessed Aug 2023
- Matthys H, Köhler S. Safety and tolerability of EPs® 7630 (Umckaloabo®). *Planta Medica* 2010, 76: 1185
- Matthys H, Kamin W. Positioning of the Bronchitis Severity Score (BSS) for standardised use in clinical studies. *CMRO* 2013, 29(10):1383-1390
- Matthys H, Lizogub VG, Funk P, Malek FA. *Pelargonium sidoides* in acute bronchitis – Health-related quality of life and patient-reported outcome in adults receiving EPs 7630 treatment. [Gesundheitsbezogene Lebensqualität und Therapiebeurteilung aus Patientensicht unter Behandlung mit EPs 7630]. Translation from *Wien MedWochenschr* 2010a, 160(21-22):1-7
- Matthys H, Lizogub VG, Malek FA, Kieser M. Efficacy and tolerability of EPs® 7630 tablets in patients with acute bronchitis: a randomised, double-blind, placebo-controlled dose-finding study with a herbal drug preparation from *Pelargonium sidoides*. *CurrMed Res Opin* 2010b, 26(6):1413-1422
- Neugebauer P, Mickenhagen A, Siefer O, Walger M. A new approach to pharmacological effects on ciliary beat frequency in cell cultures – exemplary measurements under *Pelargonium sidoides* extract (EPs® 7630). *Phytomedicine* 2005, 12:46-51
- Niho N, Shibutani M, Tamura T, Toyoda K, Uneyama C, Takahashi N, *et al.* Subchronic toxicity study of gallic acid by oral administration in F344 rats. *Food Chem Toxicol* 2001, 39:1063-1070
- Nöldner M, Schötz K. Inhibition of lipopolysaccharid-induced sickness behavior by a dry extract from the roots of *Pelargonium sidoides* (EPs 7630) in mice. *Phytomedicine* 2007; 14: 27–31
- Patience S, Mativandlela N, Meyer JJM, Hussein AA, Lall N. Antitubercular activity of compounds isolated from *Pelargonium sidoides*. *Pharm Biol* 2007, 45:645-650

- Patrick G, Hickner J. This obscure herb works for the common cold. *J Fam Practice* 2008, 57:157-161
- Rajalakshmi K, Devaraj H, Devaraj SN. Assessment of the no-observed-adverse-effect level (NOAEL) of gallic acid in mice. *Food Chem Toxicol* 2001, 39:919-922
- Regulatory questions and answers on herbal medicinal products" (EMA/HMPC/345132/2010 Rev.5)
- Schapowal A, Heger M. EPs® 7630 Lösung (Umckaloabo®) bei Sinusitis. *Z Phytother* 2007, 28:58-65
- Schnitzler P, Schneider S, Stintzing FC, Carle R, Reichling J. Efficacy of an aqueous *Pelargonium sidoides* extract against herpes virus. *Phytomedicine* 2008, 15:1108-1116
- Schulz V. Auszug aus *Pelargonium sidoides*- Wurzel wirksam bei akuter Bronchitis Ergebnisse einer Doppelblindstudie mit 124 Patienten. *Z Phytother* 2006, 27:237-238
- Schulz V. Liquid herbal drug preparation from the root of *Pelargonium sidoides* is effective against acute bronchitis: Results of double-blind study with 124 patients. *Phytomedicine* 2007, 14 Suppl 6:74-75
- Schulz V. Dosisfindungstudie zur Wirksamkeit von *Pelargonium sidoides* extrakt (EPs® 7630 in neuer Tablettenform) bei 405 Erwachsenen mit acuter Bronchitis. *Z Phytother* 2008a, 29:37-38
- Schulz V. Akute Bronchitis – Kongressbericht über zwei neue Doppelblindstudien zur Wirksamkeit und Vertraglichkeit von *Pelargonium sidoides* Extrakt (EPs® 7630) bei 420 Kindern und Jugendlichen. *Z Phytother* 2008b, 29:38-39
- Seidel V, Taylor P. In vitro activity of extract and constituents of *Pelargonium* against rapidly growing mycobacteria. *Int J Antimicrob Agents* 2004, 23:613-619
- Taylor P, Maalim S, Coleman S. The strange story of umckaloabo. *Pharm J* 2005, 275:790-792
- Teschke R, Frenzel C, Schulze J, Eikhoff A. Spontaneous reports of primarily suspected hepatotoxicity by *Pelargonium sidoides*: Was causality adequately ascertained? *Regul Toxicol Pharmacol* 2012a, 63:1-9
- Teschke R, Frenzel C, Wolff A, Herzog J, Glass X, Schulze J, et al. Initially purported hepatotoxicity by *Pelargonium sidoides*: the dilemma of pharmacovigilance and proposals for improvement. *Ann Hepatol* 2012b, 11:500-512
- Teschke R, Danan G. The LiverTox paradox-gaps between promised data and reality check. *Diagnostics (Basel)* 2021, 11(10):1754, doi: 10.3390/diagnostics11101754
- Thäle C, Kiderlen A, Kolodziej H. Anti-infective mode of action of EPs® 7630 at the molecular level. *Planta Med* 2008, 74:675-681
- Timmer A, Günther J, Rücker G, Motschall E, Antes G, Kern WV. *Pelargonium sidoides* extract for acute respiratory tract infections. *Cochrane Database Syst Rev* 2008, 3:CD006323
- Timmer A, Günther J, Motschall E, Rücker G, Antes G, Kern WV. *Pelargonium sidoides* extract for treating acute respiratory tract infections. *Cochrane Database Syst Rev* 2013, 10:CD006323
- Trun W, Kiderlen AF, Kolodziej H. Nitric oxide synthase and cytokines gene expression analyses in Leishmania-infected RAW 264.7 cells treated with an extract of *Pelargonium sidoides* (EPs® 7630). *Phytomedicine* 2006, 13:570-575
- Willson CM, Grundmann O. In vitro assays in natural products research – a matter of concentration and relevance to *in vivo* administration using resveratrol, α-mangostin/γ-mangostin and xanthohumol as examples. *Nat Prod Res* 2017, 31(5):492-506

Wittschier N, Faller G, Hensel A. An extract of *Pelargonium sidoides* (EPs® 7630) inhibits *in situ* adhesion of *Helicobacter pylori* to human stomach. *Phytomedicine* 2007, 14:285-288

Wopker PM, Schwermer M, Sommer S, Längler A, Fetz K, Ostermann T, et al. Complementary and alternative medicine in the treatment of acute bronchitis in children: A systematic review. *Complement Ther Med* 2020, 49:102217

References assessed but not included in the Assessment report

Arold G, Wollny A. Final report. A placebo-controlled, double-blind, parallel-group interaction study of an Umckaloabo preparation and penicillin V in 28 healthy subjects. Study No.: 88801.01.029. Berlin 2003 [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co. KG]

Cohen J. *Statistical Power Analysis for the Behavioral Sciences*, 2nd Ed. Hillsdale: Lawrence Erlbaum Associates, 1988

Cook RJ, Sackett DL. The number needed to treat: a clinically useful measure of treatment effect. *BMJ* 1995, 310:452-454

Heger M. Wirksamkeit und Verträglichkeit eines Extraktes aus *Pelargonium sidoides* (EPs® 7630) bei akuter Bronchitis. Ergebnisse einer multizentrischen doppelblinden, placebokontrollierten Studie. [Efficacy and tolerability of an extract from *Pelargonium sidoides* (EPs® 7630) in acute bronchitis. Results from a multicenter double-blind placebo-controlled study]. Abstract from Phytopharmaka und Phytotherapie – Forschung und Praxis, Berlin, October 10–12, 2002

Malek FA. Efficacy and tolerability of *Pelargonium sidoides* extract EPs 7630 in patients (1 to 18 years old) with acute bronchitis: A randomized, double-blind, placebo-controlled clinical trial [Study No. 70100.01.001]. Karlsruhe 2007a [unpublished clinical trial, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Malek FA, Köhler S, Kieser M, Buschulte I. Efficacy and tolerability of EPs 7630-filmcoated tablets in patients (6 to 18 years old) with acute bronchitis: A randomised, double-blind, placebo-controlled clinical dose-finding study [Study No. 701003.01.002]. Karlsruhe 2007b [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Malek FA, Köhler S, Kieser M, Buschulte I. Efficacy and tolerability of EPs 7630-filmcoated tablets in patients (>18 years old) with acute bronchitis: A randomized, double-blind, placebo-controlled clinical dose-finding study [Study-No. 701003.01.003]. Karlsruhe 2007c [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Malek FA, Köhler S, Kieser M, Buschulte I. Efficacy and tolerability of EPs 7630, a liquid herbal drug preparation from *Pelargonium sidoides* in patients (1-18 years old) suffering from acute bronchitis: A randomized, double-blind, placebo-controlled clinical trial [Study-No. 701003.01.004]. Karlsruhe 2007d [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Mwachari C, Nduba V, Nguti R, Park DR, Sanguli L, Cohen CR. Validation of a new clinical scoring system for acute bronchitis. *The International Journal of Tuberculosis and Lung Disease* 2007; 11: 1253-1259

Neidig C. Clinical study report. Efficacy of EPs® 7630 in the treatment of acute angina catarrhalis. [Wirksamkeit von EPs® 7630 bei akuter Angina catarrhalis]. Cologne 2002a [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Neidig C. Clinical study report. Efficacy of EPs® 7630 in the treatment of acute angina catarrhalis. [Wirksamkeit von EPs® 7630 bei akuter Angina catarrhalis]. Cologne 2002b [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Vornbäumen J. and Eisebitt R. Biometrial report. Efficiency of Umckaloabo compared to acetylcysteine in acute bronchitis. Cologne - 1998, 1-20 [unpublished report, provided by Dr. Willmar Schwabe GmbH & Co.KG]

Zind U, Reineke T, Buschulte I. Investigation on the safety of EPs® 7630 after continuous treatment over 6 weeks in 2 different dosages: A placebo-controlled trial in healthy volunteers. Ettlingen 2011 [unpublished study report, provided by Dr. Willmar Schwabe GmbH & Co.KG]