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List of references supporting the assessment of *Urtica dioica* L.; *Urtica urens* L., radix

Final – Revision 1

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.

Abrams P, Schulman CC, Vaage S. Tamsulosin, a selective alpha 1c-adrenoceptor antagonist: a randomized, controlled trial in patients with benign prostatic 'obstruction' (symptomatic BPH). The European Tamsulosin Study Group. *Br J Urol* 1995, 76(3): 325-336

Bakhshae M, Mohammad Pour AH, Esmaeili M, Jabbari Azad F, Alipour Talesh G, Salehi M *et al.* Efficacy of supportive therapy of allergic rhinitis by stinging nettle (*Urtica dioica*) root extract: a Randomized, Double-Blind, Placebo-Controlled, Clinical trial. *Iran J Pharm Res* 2017, 16: 112-118

Bauer HW, Sudhoff F, Dressler S. Endokrine Parameter während der Behandlung der benignen Prostatahyperplasie mit ERU. In: Bauer HW, editor. Benigne Prostatahyperplasie II. Klinische und experimentelle Urologie 19. Zuckschwerdt Verlag, München - Bern - Wien - New York 1988, 75-82

Belaiche P, Lievoux O. Clinical studies on the palliative treatment of prostatic adenoma with extract of *Urtica* root. *Phytotherapy Res* 1991, 5: 267-269

Berger F. Handbuch der Drogenkunde. Erkennung, Wertbestimmung und Anwendung Vol 5. Radices Wilhelm Maudrich Verlag Wien, Bonn, Bern 1960

Bisset NG, Wichtl M, editors. Herbal drugs and Phytopharmaceuticals. 2nd edition. Medpharm Scientific Publishers GmbH, Stuttgart 1994, 508-509

Blaschek W, Hänsel R, Keller K, Reichling J, Rimpler H, Schneider G, editors. Hagers Handbuch der Pharmazeutischen Praxis. Drogen L-Z. Vol 3. 5th ed. Springer-Verlag, Berlin 1998, 724-736

Blumenthal M, Busse WR, Goldberg A, Gruenwald J, Hall T, Riggins CW *et al.*, editors. The complete German commission E monographs. The American Botanical Council, Austin/Texas, published in cooperation with Integrative Medicine Communications, Boston, MA 1998, 217

Blumenthal M, Goldberg A, Brinckmann J, editors. Herbal medicine. Expanded Commission E Monographs. The American Botanical Council, Austin/Texas 2000, 367-375



Boyarsky S, Jones G, Paulson DF, Prout GR. A new look at bladder neck obstruction by the Food and Drug Administration Regulators: guidelines for investigation of benign prostatic hypertrophy. *Trans Am Assoc Gen-Urig Surg* 1977, 68: 29-32

Bradley PR, editor. British Herbal Compendium. Vol 2. British Herbal Medicine Association, Bournemouth 2006, 300-305

BHP. British Herbal Pharmacopoeia. Nettle herb, *Urticae herba*. British Herbal Medicine Association 1996, 143-144

Bruneton J. Pharmacognosy - Phytochemistry - Medicinal Plants. Lavoisier Publishing, Paris 1999, 756-758

Chrubasik JE, Roufogali BD, Wagner H, Chrubasik S. A comprehensive review on the stinging nettle effect and efficacy profiles. Part II: *Urticae radix*. *Phytomed* 2007, 14: 568-569

Commission E. Monograph *Urticae radix*. Bundesanzeiger Nr. 173 vom 18.09. 1986

Dathe G, Schmid H. Phytotherapie der benignen Prostatahyperplasie (BHP) Doppelblindstudie mit Extractum Radicis *Urticae* (ERU). *Urologe (B)* 1987, 27: 223-226

Djulepa J. Zweijährige Erfahrung in der Therapie des Prostata-Syndroms. Die Ergebnisse einer konservativen Behandlung mit Bazoton®. *Ärztl Praxis* 1982, 34: 2199-2202

Dunzendorfer U. Der Nachweis von Reaktionseffekten des Extractum Radicis *Urticae* (ERU) im menschlichen Prostatagewebe durch Fluoreszenzmikroskopie. *Z Phytotherapie* 1984, 5: 800-804

Engelmann U, Boos G, Kres H. Therapie der benignen Prostatahyperplasie mit Bazoton Liquidum. Ergebnisse einer doppelblinden, placebokontrollierten, klinischen Studie. *Urologe B* 1996, 36: 287-291

ESCOPE Monographs. 1st ed. *Urticae radix* - Nettle root. European Scientific Cooperative on Phytotherapy. Exeter, UK 1996

ESCOPE Monographs. 2nd ed. *Urticae radix*- Nettle root. European Scientific Cooperative on Phytotherapy, editor. Thieme, Stuttgart 2003, 528-535

European Pharmacopoeia 11th ed. Nettle root - *Urticae radix*. Council of Europe. 01/2022:2538

Feiber H. Sonographische Verlaufsbeobachtungen zum Einfluß der medikamentösen Therapie der benignen Prostatahyperplasie (BPH) In: Bauer HW, editor. Benigne Prostatahyperplasie II. Klinische und experimentelle Urologie 19. München-Bern-Wien, New York: Zuckschwerdt Verlag, 1988: 75-82

Fischer M, Wilbert D. Wirkprüfung eines Phytopharmakons zur Behandlung der benignen Prostatahyperplasie (BPH). In: Rutishauser G, editor. Benigne Prostatahyperplasie III. Klinische und experimentelle Urologie 22. Zuckschwert, München-Bern-New York 1992, 79-84

Friesen A. Statistische Analyse einer Multizenter-Langzeitstudie mit ERU. In: Bauer HW, editor. Benigne Prostatahyperplasie II. Klinische und experimentelle Urologie 19. Zuckschwerdt Verlag, München-Bern-Wien-San Francisco 1988, 121-130

Ghorbanibirgani A, Khalili A, Zamani L. The efficacy of stinging nettle (*Urtica dioica*) in patients with benign prostatic hyperplasia: a randomized double-blind study in 100 patients. *Iran Red Crescent Med J* 2013, 15(1): 9-10

Goetz P. Die Behandlung der benignen Prostatahyperplasie mit Brennnesselwurzeln. *Z Phytother* 1989, 10: 175-178

- Gormley GJ, Stoner E, Bruskewitz RC, Imperato-McGinley J, Walsh PC, McConnell JD et al. The effect of finasteride in men with benign prostatic hyperplasia. The Finasteride Study Group. *N Engl J Med*. 1992, 327(17): 1185-1191
- Gravas S, Gacci M, Gratzke C, Hermann TRW, Karavitakis M, Kyriazis I et al. Summary Paper on the 2023 European Association of Urology Guidelines on the Management of Non-neurogenic Male Lower Urinary Tract Symptoms. *Eur Urol* 2023, 84: 207-222
- Hartmann RW, Mark M, Soldati F. Inhibition of 5 α -reductase and aromatase by PHL-00801 (Prostatonins), a combination of PY 102 (Pygeum africanum) and UR 102 (Urtica dioica) extracts. *Phytomedicine* 1996, 3: 121-128
- Jardin A, Bensadoun H, Delauche-Cavallier MC, Attali P. Alfuzosin for treatment of benign prostatic hypertrophy *The Lancet* 1991, 337: 1457-1461
- Jaspersen-Schib R. Die Brennnessel – eine Modedroge – oder mehr? *Schweiz Apoth Ztg* 1989, 127: 443-445
- Kaldewey W. Behandlung der Benignen Prostata-hyperplasie und der Prostatitis mit einem standardisierten Urtica-radix-Extract. Eine multizentrische Studie in 279 urologischen Praxen. *Urologe B* 1995, 35: 430-433
- Karami AA, Sheikhsoleimani M, Reza Memarzadeh M, Haddadi E, Bakhshpour M, Mohammad N et al. *Urtica dioica* Root Extract on Clinical and Biochemical Parameters in Patients with Benign Prostatic Hyperplasia, Randomized Controlled trial. *Pak J Biol Sci* 2020, 23(10): 1338-1344
- Kayser K, Bubenzer J, Kayser G, Eichhorn S, Zemlyanukhina TV, Bovin NV et al. Expression of lectin, interleukin-2 and histopathologic blood group binding sites in prostate cancer and its correlation with integrated optical density and syntactic structure analysis. *Anal Quant Cytol Histol*. 1995, 17(2): 135-142
- Kern W. Hagers Handbuch der Pharmazeutischen Praxis. Chemikalien und Drogen Teil C: T-Z. Vol 6. 4th ed. Springer-Verlag, Berlin, Heidelberg, New York 1979
- Klein-Bischoff U, Kaszkin-Bettag M, Heger PW, Sökeland J. Wirksamkeit des Brennnesselwurzel-Extraktes PU 240 bei BPH. *Therapie Report aktuell, Uro-News* 2007, 160(1-2): 1-6
- Koch E. Extracts from Fruits of Saw Palmetto (*Sabal serrulata*) and Roots of Stinging Nettle (*Urtica dioica*): Viable Alternatives in the Medical Treatment of Benign Prostatic Hyperplasia and Associated Lower Urinary Tracts Symptoms. *Planta Med* 2001, 67: 489-500
- Kraus R, Spiteller G, Bartsch W. (10E,12Z)-9-hydroxy-10,12-octadecadienoic acid, an aromatase inhibitor from the roots of *Urtica dioica*. *Liebigs Ann Chem* 1991, 4: 335-339
- Lutomsky J, Speichert H. Die Brennnessel in Heilkunde und Ernährung. *Pharmazie Unserer Zeit* 1983, 12: 181-186
- Maar K. Rückbildung der Symptomatik von Prostataadenomen. Ergebnisse einer sechsmonatigen konservativen Behandlung mit ERU-Kapseln. *Fortschr Med* 1987, 105: 18-20
- Madaus G. Lehrbuch der biologischen Heilmittel. Vol 2. Georg Olms Verlag. Hildesheim-New York 1976 (reprint)
- Men C, Wang M, Aiyireti M, Cui Y. The efficacy and safety of *Urtica dioica* in treating benign prostatic hyperplasia: a systematic review and meta-analysis. *Af J Tradit Complement Altern Med* 2016, 13(2): 143-150

- Mills S, Bone K. Principles and practice of phytotherapy. Churchill Livingstone 2003, 490-498
- Oberholzer M, Schamböck A, Rugendorff EW, Mihatsch M, Rist M, Buser M *et al.*
Elektronenmikroskopische Ergebnisse bei medikamentös behandelter benigner Prostatahyperplasie (BPH). In: Bauer HW, editor. Benigne Prostatahyperplasie. Klinische und experimentelle Urologie 14. Zuckschwerdt Verlag, München-Bern-Wien-San Francisco 1987, 13-107
- Phua TJ. The Etiology and Pathophysiology Genesis of Benign Prostatic Hyperplasia and Prostate Cancer: A New Perspective. *Medicines* 2021, 8:30
- Pusztai A. Transport of proteins through the membranes of the adult gastro-intestinal tract — a potential for drug delivery? *Adv Drug Deliv Rev.* 1989, 3(2): 215–228
- Rápóti J, Romvari V. Gyógyító növények (Healing Plants) 4th ed. Budapest 1974, 90-92
- Safarinejad MR. Urtica dioica for treatment of benign prostatic hyperplasia: a prospective, randomized, double-blind, placebo-controlled, crossover study. *J Herb Pharmacother* 2005, 5: 1-11
- Samadian E, Hosseinzadeh Colagar A, Asadi J. Effects of Urtica dioica agglutinin on glycotargeting of the vasculature: an in ovo study on chicken embryo. *Vet Res Forum* 2022, 13(3): 379–385
- Samtleben R, Boos G, Wagner H. Novel enzyme-linked immunoassay for the quantitation of Urtica dioica agglutinin (UDA) in stinging nettle extracts and human excretions. In: Abstract of 2nd International Congress on Phytomedicine. 1996 (Abstract SL-107) Published in: *Phytomedicine* 1996, 3(1): 134 [only from ESCOP 2003, Ref.: 83]
- Sandhu JS, Bixler BR, Dahm P, Goueli R, Kirkby E, Stoffel JT *et al.* Management of lower urinary tract symptoms attributed to benign prostatic hyperplasia (BPH): AUA Guideline amendment 2023. *J Urol.* 2024, 211(1): 11-19;10.1097/JU.0000000000003698
- Schilcher H, Wülker A. Phytotherapy in der Urologie. Brennesselwurzel (Urticae radix). Hippokrates Verlag, Stuttgart 1992, 84-88
- Schneider T, Rübber H. Brennesseltrockenextrakt (Bazoton®-uno) in der Langzeittherapie des benignen Prostatasyndroms (BPS) Ergebnisse einer randomisierten, doppelblinden, placebokontrollierten Multicenterstudie 12 Monate. [Extract of stinging nettle roots (Bazoton® uno) in long-term treatment of benign prostatic syndrome (BPS). Results of a randomized, double-blind, placebo-controlled multicentre studies after 12 months.] *Urologe A* 2004, 43: 302-306
- Tosch U, Müssiggang H. Medikamentöse Behandlung der benignen Prostatahyperplasie. *Euromed* 1983, 6: 334-336
- Vandierendouck EJ, Burkhardt P. Extractum radices urticae bei Fibromyoadenom der Prostata mit nächtlicher Pollakisurie. *Therapiewoche Schweiz* 1986, 2: 892-895
- Veit M, van Rensen I, Blume H, Ihrig M, Morck H, Dingermann T. Bewertung von Phytopharmaka in der Therapie der BPH. *Pharm. Z* 1998, 143(23): 1905-1927
- Vontobel HP, Herzog R, Rutishauser G, Kres H. Ergebnisse einer Doppelblindstudie über die Wirksamkeit von ERU-Kapseln in der konservativen Behandlung der benignen Prostatahyperplasie. *Urologe [A]* 1985, 24: 49-51
- Wichtl M. Teedrogen und Phytopharmaka. 4th ed. Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart 2002
- Ziegler H. Fluoreszenzmikroskopische Untersuchungen von Prostatazellen unter Einwirkung Extractum Radicis Urticae (ERU). *Fortschr Med* 1983, 101: 2112-2114

Ziegler H. Zytomorphologische Untersuchung der benignen Prostatahyperplasie unter Behandlung mit Extractum Radicis Urticae (ERU). Vorläufige Ergebnisse. *Fortsch Med* 1982, 100: 1832-1834

References read but not included in the Assessment report

- Alken CE. Konservative Behandlung des Prostata-Adenoms und Stadien-Einteilung. *Urologe B* 1973, 13: 95-98
- Barry MJ, Fowler Jr FJ, O'Leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK et al. The American Urological Association symptom index for benign prostatic hyperplasia. The Measurement Committee of the American Urological Association. *J Urol* 1992, 148: 1549-1557
- Bartsch W, Kühne G. Hemmung der Aromatase durch 9-Hydroxy-10-trans-12-cis-octadecadiensäure. In: *Klinische und experimentelle Urologie, Benigne Prostatahyperplasie III*. Zuckschwerdt Verlag, München - Bern - Wien - New York 1992, 108-115
- Deutsches Arzneibuch 10. Ausgabe, 2 (DAB 10), Nachtrag 1993
- Çagıl FZ. Cytotoxic and Apoptotic Effects of *Urtica dioica* Agglutinin on AGS Cells. *Med Chem* [Internet]. 2015 [cited 2023 Sep 11];5(3). Available at: <https://www.omicsonline.org/open-access/cytotoxic-and-apoptotic-effects-of-urticadioica-agglutinin-on-ags-cells-2161-0444-1000253.php?aid=43863>
- EAU Guidelines Office, Arnhem, the Netherlands. Available at: <http://uroweb.org/guidelines/compilations-of-all-guidelines/> – Accessed 19/01/2024
- Ganßer D, Spiteller G. Aromatase inhibitors from *Urtica dioica* roots. *Planta Med* 1995a, 61: 138-140
- Ganßer D, Spiteller G. Plant constituents interfering with human sex hormone-binding globulin. Evaluation of a test and its application to *Urtica dioica* root extracts. *Z Naturforsch C* 1995b, 50: 98-104
- Konrad L, Müller HH, Lenz C, Laubinger H, Aumüller G, Lichius JJ. Antiproliferative effect on human prostate cancer cells by a stinging nettle (*Urtica dioica*) extract. *Planta Med* 2000, 66: 44-47
- Peumans WJ, De Ley M, Broekaert WF. An unusual lectin from stinging nettle (*Urtica dioica*) rhizomes. *FEBS Lett* 1984, 199: 99-103
- Rashidbaghan A, Mostafaie A, Yazdani Y, Mansouri K. *Urtica dioica* agglutinin (a plant lectin) has a caspase-dependent apoptosis induction effect on the acute lymphoblastic leukemia cell line. *Cell Mol Biol Noisy--Gd Fr.* 2020, 66(6): 121-126
- Rashidbaghan A, Mostafaie A, Yazdani Y, Mansouri K. The Agglutinin of Common Nettle (*Urtica dioica* L.) Plant Effects on Gene Expression Related to Apoptosis of Human Acute Myeloid Leukemia Cell Line. *Biochem Genet.* 2021, 59(4):1049-1064
- Samadian E, Colagar AH, Safar zad M, Asadi J, Mansouri K. Inhibitory potency of the nettle lectin on neovascularization: a biomolecule for carbohydrate-mediated targeting of angiogenesis. *Mol Biol Rep* 2023, 50(5): 4491-4503
- Schöttner M, Gansser D, Spiteller G. Lignans from the roots of *Urtica dioica* and their metabolites bind to human sex hormone binding globulin (SHBG). *Planta Med* 1997, 63: 529-532
- Shi Z, Li WW, Tang Y, Cheng LJ. A Novel Molecular Model of Plant Lectin-Induced Programmed Cell Death in Cancer. *Biol Pharm Bull* 2017, 40(10): 1625-1629
- Vahlensieck W, Fabricius PG. Benigne Prostatahyperplasie (BPH). Therapeutische Möglichkeiten durch medikamentöse Therapie. *Die Therapiewoche* 1996, 33: 1796-1802
- Wagner H, Geiger WN, Boos G, Samtleben R. Studies on the binding of *Urtica dioica* agglutinin (UDA) and other lectins in an *in vitro* epidermal growth factor receptor test. *Phytomed* 1995, 4: 287-290

Wagner H, Willer F, Samtleben R, Boos G. Search for the antiprostatic principle of stinging nettle (*Urtica dioica*) roots. *Phytomed* 1994, 1: 213-224

WHO monographs on selected medicinal plants. Vol 2. Radix urticae. World Health Organization, Geneva 2002, 329-341

Wolff H, Bezold G, Zebhauser M, Meurer M. Impact of clinically silent inflammation on male genital tract organs as reflected by biochemical markers in semen. *J Andrology* 1991, 12(5): 331-334