



NATURAL HEALTH PRODUCT

DRIED CRANBERRY JUICE

This monograph is intended to serve as a guide to industry for the preparation of Product License Applications (PLAs) and labels for natural health product market authorization. It is not intended to be a comprehensive review of the medicinal ingredient.

Notes

- ▶ Text in parentheses is additional optional information which can be included on the PLA and product label at the applicant's discretion.
- ▶ The solidus (/) indicates that the terms and/or statements are synonymous. Either term or statement may be selected by the applicant.

Date

September 29, 2022

Proper name(s), Common name(s), Source information

Table 1. Proper name(s), Common name(s), Source information

Proper name(s)	Common name(s)	Source information		
		Source material(s)	Part(s)	Preparation(s)
<i>Vaccinium macrocarpon</i>	<ul style="list-style-type: none"> ▶ Cranberry juice powder ▶ Dried cranberry juice ▶ Dried <i>Vaccinium macrocarpon</i> (cranberry) fruit juice 	<i>Vaccinium macrocarpon</i>	Fruit	Dry

References: Proper name: USDA 2018, McGuffin et al. 2000; Common names: Jepson and Craig 2008, Mills and Bone 2005, Stothers 2002, Upton 2002, Siciliano 1996; Source information: Jepson and Craig 2008, Mills and Bone 2005, Stothers 2002, Upton 2002, Siciliano 1996.

Route of administration

Oral

Dosage form(s)

This monograph excludes foods or food-like dosage forms as indicated in the Compendium of Monographs Guidance Document.



Acceptable dosage forms for oral use are indicated in the dosage form drop-down list of the web-based Product Licence Application form for Compendial applications.

Use(s) or Purpose(s)

- ▶ Source of/Provides antioxidants (Valentenova et al. 2007; Ruel et al. 2005; Upton 2002).
- ▶ (Traditionally) used in Herbal Medicine to help prevent (recurrent) urinary tract infections (UTIs) (in women) (Barnes et al. 2007; Bruyère 2006; Mills and Bone 2005; Blumenthal et al. 2003; Bodel et al. 1959).
- ▶ Helps prevent (recurrent) urinary tract infections (UTIs) (in women) (Jepson and Craig 2008; Stothers 2002; Walker et al. 1997; Avorn et al. 1994).

Note

Claims for traditional use must include the term “Herbal Medicine”, “Traditional Chinese Medicine”, or “Ayurveda”.

Dose(s)

Subpopulation(s)

Adults 18 years and older

Quantity(ies)

Antioxidant

Method of preparation: Juice powdered

Not to exceed 1200 milligrams of dried fruit juice, per day (Valentenova et al. 2007; Upton 2002).

(Recurrent) urinary tract infection

Method of preparation: Juice powdered

400 - 1200 milligrams of dried fruit juice, per day (Mills and Bone 2005; Upton 2002; Walker et al. 1997).

Note

Applicants are not to provide a quantity of crude equivalent (QCE) and/or extract ratio.



Direction(s) for use

No statement required.

Duration(s) of use

Antioxidant

No statement required.

(Recurrent) urinary tract infection

Use for at least 4 weeks to see beneficial effects (Jepson and Craig 2008; Blumenthal et al. 2003; Walker et al. 1997; Avorn et al. 1994).

Risk information

Caution(s) and warning(s)

All products

- ▶ Consult a health care practitioner/health care provider/health care professional/doctor/physician prior to use if you have a history of kidney stones (Gettman et al. 2005; Terris et al. 2001).
- ▶ Consult a health care practitioner/health care provider/health care professional/doctor/physician prior to use if you are taking blood thinners (Brinker 2010; Aston et al. 2006; Rindone and Murphy 2005; Grant 2004).

(Recurrent) urinary tract infection

Consult a health care practitioner/health care provider/health care professional/doctor/physician if symptoms persist or worsen.

Contraindication(s)

No statement required.

Known adverse reaction(s)

No statement required.



Non-medicinal ingredients

Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database.

Storage conditions

Must be established in accordance with the requirements described in the *Natural Health Products Regulations* (NHPR).

Specifications

- ▶ The finished product specification must be established in accordance with the requirements described in the Natural and Non-prescription Health Products Directorate (NNHPD) Quality of Natural Health Products.
- ▶ The medicinal ingredient must comply with the requirements outlined in the NHPID.

References cited

Aston JL, Lodolce AE, Shapiro NL. 2006. Interaction between warfarin and cranberry juice. *Pharmacotherapy* 26(9):1314-1319.

Avorn J, Monane M, Gurwitz JH, Glynn RJ, Choodnovskiy I, Lipsitz LA. 1994. Reduction of bacteriuria and pyuria after ingestion of cranberry juice. *Journal of the American Medical Association* 271(10):751-754.

Barnes J, Anderson LA, Phillips JD. 2007. *Herbal Medicines*, 3rd edition. London (GB): Pharmaceutical Press.

Blumenthal M, Hall T, Goldberg A, Kunz T, Kinda K, editors. 2003. *The ABC Clinical Guide to Herbs*. Austin (TX): American Botanical Council.

Bodel PT, Cotron R, Kass EH. 1959. Cranberry juice and the antibacterial action of hippuric acid. *The Journal of Laboratory and Clinical Medicine* 54(6):881-888.

Brinker F. *Herb Contraindications and Drug Interactions*, 4th edition. Sandy (OR): Eclectic Medical Publications; 2010.

Bruyère F. 2006. Utilisation de la canneberge dans les infections urinaires récidivantes. *Médecine et Maladies Infectieuses* 36(7):358-363.

Gettman MT, Ogan K, Brinkley LJ, Adams-Huet B, Pak CYC, Pearle MS. 2005. Effect of cranberry juice consumption on urinary stone risk factors. *The Journal of Urology* 174(2):590-594.



Grant P. 2004. Warfarin and cranberry juice: an interaction? *The Journal of Heart Valve Disease* 13(1):25-26.

Jepson RG, Craig JC. 2008. Cranberries for preventing urinary tract infections. *Cochrane Database of Systematic Reviews Issue 3*. Art. No.: CD001321. DOI: 10.1002/14651858.CD001321.pub4.

McGuffin M, Kartesz JT, Leung AY, Tucker AO, editors. 2000. *Herbs of Commerce*, 2nd edition. Silver Spring (MD): American Herbal Products Association.

Mills S, Bone K. 2005. *The Essential Guide to Herbal Safety*. St Louis (MI): Elsevier Inc.
Rindone JP, Murphy TW. 2005. Warfarin-cranberry juice interaction resulting in profound hypoprothrombinemia and bleeding. *American Journal of Therapeutics* 13(3):283-284.

Ruel G, Pomerleau S, Bouture P, Lamarche B, Couillard C. 2005. Changes in plasma antioxidant capacity and oxidized low-density lipoprotein levels in men after short-term cranberry juice consumption. *Metabolism: Clinical and Experimental* 54(7):856–861.

Siciliano A. 1996. Cranberry. *Herbalgram* 38:51-54.

Stothers L. 2002. A randomized trial to evaluate effectiveness and cost effectiveness of naturopathic cranberry products as prophylaxis against urinary tract infection in women. *The Canadian Journal of Urology* 9(3):1558-1562.

Terris MK, Issa MM, Tacker JR. 2001. Dietary supplementation with cranberry concentrate tablets may increase the risk of nephrolithiasis. *Urology* 57(1):26-29.

Upton R, editor. 2002. *American Herbal Pharmacopoeia and Therapeutic Compendium: Cranberry Fruit (*Vaccinium macrocarpon* Aiton) – Standards of Analysis, Quality Control, and Therapeutics*. Santa Cruz (CA): American Herbal Pharmacopoeia.

USDA 2018: United States Department of Agriculture, Agricultural Research Service, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [online database]. Beltsville (MD): National Germplasm Resources Laboratory. [Accessed 2018 September 27]. Available from: http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl.

Valentenova K, Stejskal D, Bednar P, Vostalova J, Cihalik C, Vecerova R, Koukalova D, Kolar M, Reichenbach R, Sknouril L, Ulrichova J, Simanek V. 2007. Biosafety, antioxidant status, and metabolites in urine after consumption of dried cranberry juice in healthy women: a pilot double blind placebo-controlled trial. *Journal of Agricultural and Food Chemistry* 55(8):3217-3224.

Walker EB, Barney DP, Mickelsen JN, Walton RJ, Mickelsen RA. 1997. Cranberry concentrate: UTI prophylaxis. *The Journal of Family Practice* 45(2):167-168.



References reviewed

Barnes J, Anderson LA, Philipson JD. 2002. Herbal Medicines: A Guide for Healthcare Professionals, 2nd edition. London (GB): The Pharmaceutical Press.

Blatherwick NR, Long ML. 1923. Studies of urinary acidity. II. The increased acidity produced by eating prunes and cranberries. *The Journal of Biological Chemistry* 57(3):815-818.

Boon H, Smith MJ. 2004. *The Complete Natural Medicine Guide to the 50 Most Common Medicinal Herbs*, 2nd edition. Toronto (ON): Robert Rose Inc.

Bristol Myers Squibb. 2005. Coumadin (warfarin) package insert. Princeton (NJ): Bristol-Myers Squibb. [Accessed 2009 February 27]. Available from: http://www.bms.com/cgi-bin/anybin.pl?sql=select%20PPI%20from%20TB_PRODUCT_PPI%20where%20PPI_SEQ=91&key=PPI

Brown DJ. 1996. *Herbal Prescriptions for Better Health*. Rocklin (CA): Prima Publishing.

Chandler F, editor. 2000. Cranberry. In: *Herbs: Everyday Reference for Health Professionals*. Ottawa (ON): Canadian Pharmacists Association and the Canadian Medical Association.

Di Martino P, Agniel R, David K, Templer C, Gaillard JL, Denys P, Botto H. 2006. Reduction of *Escherichia coli* adherence to uroepithelial bladder cells after consumption of cranberry juice: a double-blind randomized placebo-controlled cross-over trial. *World of Urology* 24(1):21-27.

Fetrow CW, Avila JR. 2004. *Professional's Handbook of Complementary and Alternative Medicines*, 3rd edition. Philadelphia (PA): Lippincott Williams and Wilkins.

Foster S, Tyler VE. 1999. *Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies*, 4th edition. Binghamton (NY): Haworth Herbal Press.

Gibson L, Pike L, Kilbourn JP. 1991. Clinical study: effectiveness of cranberry juice in preventing urinary tract infections in Long-Term Care Facility patients. *The Journal of Naturopathic Medicine* 2(1):45-47.

Gotteland M, Andrews M, Toledo M, Munoz L, Caceres P, Anziani A, Wittig E, Speisky H, Salazar G. 2008. Modulation of *Helicobacter pylori* colonization with cranberry juice and *Lactobacillus johnsonii* La1 in children. *Nutrition* 24(5):421-426.

Greenblatt DJ, von Moltke LL, Perloff ES, Luo Y, Harmatz JS, Zinny MA. 2006. Interaction of flurbiprofen with cranberry juice, grape juice, tea, and fluconazole: in vitro and clinical studies. *Clinical Pharmacology and Therapeutics* 79(1):125-133.

Greenblatt DJ, von Moltke LL. 2006. Interaction of warfarin with drugs, natural substances, and foods. *Journal of Clinical Pharmacology* 45(2):127-132.



Griffiths J, Murty M, Pilon K. 2004. Suspected warfarin-cranberry juice interaction [online]. Ottawa (ON): Health Products and Food Branch, Marketed Health Products Directorate, Health Canada, Canadian Adverse Reaction Newsletter. [Accessed 2009 February 27]. Available from: http://www.hc-sc.gc.ca/dhp-mps/medeff/bulletin/carn-bce_i_v14n3_e.html

Haverkorn MJ, Mandigers J. 1994. Reduction of bacteriuria and pyuria using cranberry juice [letter]. *Journal of the American Medical Association* 272(8):590.

Henig YS, Leahy MM. 2000. Cranberry juice and urinary tract health: science supports folklore. *Nutrition* 16(17/18):684-687.

Jellin JM, Batz F, Hitchens K, editors. 2003. Pharmacist's Letter/Prescriber's Letter Natural Medicines Comprehensive Database. Stockton (CA): Therapeutic Research Faculty.

Jepson RG, Milhaljevic L, Craig J. 2004. Cranberries for preventing urinary tract infections. *Cochrane Database of Systematic Reviews Issue 2*. Art. No.: CD001321. DOI: 10.1002/14651858.CD001321.pub3.

Lavigne JP, Bourg G, Combescure C, Botto H, Sotto A. 2008. In-vitro and in-vivo evidence of dose-dependant decrease of uropathogenic *Escherichia coli* virulence after consumption of commercial *Vaccinium macrocarpon* (cranberry) capsules. *Clinical Microbiology and Infection: The Official Publication of the European Society of Clinical Microbiology and Infectious Diseases* 14(4):350-355.

Lilja JJ, Backman JT, Neuvonen PJ. 2007. Effects of daily ingestion of cranberry juice on the pharmacokinetics of warfarin, tizanidine, and midazolam – probes of CYP2C9, CYP1A2, and CYP3A4. *Clinical Pharmacology and Therapeutics* 81(6):833-839.

McHarg T, Rodgers A, Charlton K. 2001. Influence of cranberry juice on the urinary risk factors for calcium oxalate kidney stone formation. *British Journal of Urology* 87(4):307-311.

McMurdo ME, Bissett LY, Price RJ, Phillips G, Crombie IK. 2005. Does ingestion of cranberry juice reduce symptomatic urinary tract infections in older people in hospital? A double-blind, placebo-controlled trial. *Age and Ageing* 34(3):256-261.

Nowack R. 2007. Cranberry juice – a well-characterized folk-remedy against bacterial urinary tract infection. *Wiener Medizinische Wochenschrift* 157(13/14):325-330.

Pedersen CB, Kyle J, Jenkinson A McE, Gardner PT, McPhail DB, Duthie GG. 2000. Effects of blueberry and cranberry juice consumption on the plasma antioxidant capacity of health female volunteers. *European Journal of Clinical Nutrition* 54(5):405-408.

Shamseer L, Vohra S. 2007. Complementary, holistic, and integrative medicine: cranberry. *Pediatrics in Review/American Academy of Pediatrics* 28(8):e43-e45.



Shmueli H, Yahav J, Samra Z, Chodick G, Koren R, Niv Y, Ofek I. 2007. Effect of cranberry juice on eradication of *Helicobacter pylori* in patients treated with antibiotics and a proton pump inhibitor. *Molecular Nutrition & Food Research* 51(6):746-751.

Sobota AE. 1984. Inhibition of bacterial adherence by cranberry juice: potential use for the treatment of urinary tract infections. *Journal of Urology* 131(5):1013-1016.

Suvarna R, Pirmohamed M, Henderson L. 2003. Possible interaction between warfarin and cranberry juice. *British Medical Journal* 327(7429):1454.

Vinson JA, Bose P, Proch J, Al Kharrat H, Samman N. 2008. Cranberries and cranberry products: powerful in vitro, ex vivo, and in vivo sources of antioxidants. *Journal of Agricultural and Food Chemistry* 56(14):5884-5891.

Wiersema J, Léon B. 1999. *World Economic Plants: A Standard Reference*. Boca Raton (FL): CRC Press LLC.

Yarnell E. 1997. Botanical medicine for cystitis. *Alternative Complementary Therapy* 3(4):269-275.

Zhang L, Ma J, Pan K, Go VLW, Chen J, You W. 2005. Efficacy of cranberry juice on *Helicobacter pylori* infection: a double-blind, randomized placebo-controlled trial. *Helicobacter* 10(2):139-145.