

NATURAL HEALTH PRODUCT

BLACK COHOSH - ACTAEA RACEMOSA

This monograph is intended to serve as a guide to industry for the preparation of Product Licence 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 labels at the applicants' discretion.
- ▶ The solidus (/) indicates that the terms and/or statements are synonymous. Either term or statement may be selected by the applicant.

Date

August 28, 2018

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

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

Proper name(s)	Common name(s)	Source material(s)		
		Proper name(s)	Part(s)	Preparation(s)
Actaea racemosa	▶ Black bugbane	Actaea racemosa	Rhizome	Dried
	Black cohosh		▶ Root	
	▶ Black snakeroot		Root and	
			rhizome	

References: Proper name: USDA 2018; Common names: McGuffin et al. 2000; Source material: BHP 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 the age category listed in this monograph and specified route of administration are indicated in the Compendium of Monographs Guidance Document.



Use(s) or Purpose(s)

- ▶ (Traditionally) used in Herbal Medicine to help relieve the pain associated with menstruation (Hoffmann 2003, Blumenthal et al. 2000, Bradley 1992, Williamson et al. 1988, Ellingwood 1983, Felter and Lloyd 1983).
- ▶ (Traditionally) used in Herbal Medicine to help relieve muscle and joint pain associated with rheumatic conditions (such as rheumatoid arthritis, osteoarthritis and/or fibrositis), and pain associated with neuralgia (such as sciatica) (Hoffmann 2003, BHP 1983, Ellingwood 1983, Felter and Lloyd 1983).
- ► (Traditionally) used in Herbal Medicine to help ease nervous tension (calmative) (Hoffmann 2003, Williamson 2003, BHP 1983, Ellingwood 1983, Felter and Lloyd 1983)
- ▶ Used in Herbal Medicine to help relieve premenstrual symptoms (Blumenthal et al. 2000, Bradley 1992).
- ▶ (Used in Herbal Medicine to) help(s) relieve symptoms associated with menopause (Raus et al. 2006, Wuttke et al. 2006, Frei-Kleiner et al. 2005, Blumenthal et al. 2000, Bradley 1992).

The following combined use(s) or purpose(s) is/are also acceptable:

Used in Herbal Medicine to help relieve the pain associated with menstruation as well as premenstrual symptoms (Hoffmann 2003; Blumenthal et al. 2000; Bradley 1992; Williamson et al. 1988; Ellingwood 1983; Felter and Lloyd 1983).

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)

Methods of preparation: Dry, Powder, Non-Standardised Extracts (Dry extract, Tincture, Fluid extract, Decoction, Infusion)

40 - 2,400 milligrams of dried root and/or rhizome, per day (Raus et al. 2006; Wuttke et al. 2006; Frei-Kleiner et al. 2005; Hoffmann 2003; Blumenthal et al. 2000; Bradley 1992; Williamson et al. 1988; Ellingwood 1983).

Direction(s) for use

No statement required.





Duration(s) of use

No statement required.

Risk information

Caution(s) and warning(s)

- ► Consult a health care practitioner/health care provider/health care professional/doctor/physician if symptoms persist or worsen.
- ▶ Consult a health care practitioner/health care provider/health care professional/doctor/physician prior to use if you are breastfeeding, have a liver disorder or develop symptoms of liver trouble (EMEA 2006; Lynch et al. 2006; Mills et al. 2006; Cohen et al. 2004; NIH 2004).

Contraindication(s)

Do not use this product if you are pregnant (Brinker 2010; Hoffmann 2003; Tilgner 1999).

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

No statement required.

Specifications

- ▶ The finished product specifications must be established in accordance with the requirements described in the Natural and Non-prescription Health Products Directorate (NNHPD) Quality of Natural Health Products Guide.
- ▶ The medicinal ingredient must comply with the requirements outlined in the NHPID.
- ▶ Health Canada is aware of peer-reviewed published cases where products labelled as containing Black Cohosh were found by laboratory analysis to contain different species. In order to prevent misidentification, the identification of authentic Black Cohosh must be completed by an unambiguous validated method such as the HPLC-ELSD, HPLC-MS or HPLC-MS/MS to determine the presence of a specific marker compound and/or the absence



of others. For example, *Actaea racemosa* contains the triterpene glycoside cimiracemoside C (also called cimigenol-3-Oarabinoside), while most other *Actaea/Cimicifuga* species do not; conversely, other *Actaea/Cimicifuga* species contain the phenolic acid derivatives cimifugin and (or) cimifigin-3-O-glucoside (e.g. *A. cimicifuga* and *A. yunnanensis*, but not *A. dahurica*) while Black Cohosh does not. The commonly used markers, 23-epi-26deoxyactein and actein, are found in more than one species of *Actaea* and therefore their presence is not sufficient evidence alone of the unambiguous identification of *Actaea racemosa* (Jiang et al. 2006; He et al. 2000). The NNHPD recognizes that there are numerous methods which can be used to unambiguously identify Black Cohosh. These methods include, but are not limited to, those cited in the following references: Avula et al. 2007; He et al. 2006; Jiang et al. 2006; Brigham et al. 2004; Zerega et al. 2002; He et al. 2000.

Note:

Data relating to the identification of Black Cohosh, using an unambiguous validated method, is not to be submitted with the compendial Product Licence Application, although it may be requested at the NNHPD's discretion.

References cited

Avula B, Ali Z, Khan IA. 2007. Chemical Fingerprinting of *Actaea racemosa* (Black Cohosh) and its comparison study with closely related *Actaea* species (*A. pachypoda, A. podocarpa, A. rubra*) by HPLC. Chromatographia 66(9/10):757-762.

BHP 1983: British Herbal Pharmacopoeia. Bournemouth (UK): British Herbal Medical Association.

BHP 1996: British Herbal Pharmacopoeia. Bournemouth (UK): The British Herbal Medicine Association.

Blumenthal M, Goldberg A, Brinkmann J, editors. 2000. Herbal Medicine: Expanded Commission E Monographs. Boston (MA): Integrative Medicine Communications.

Bradley PR, editor. 1992. British Herbal Compendium: A Handbook of Scientific Information on Widely Used Plant Drugs, Volume 1. Bournemouth (UK): British Herbal Medicine Association. Brigham T, Schröder M, Cocksedge M. 2004. Good Practices for Plant Identification for the Herbal Industry. Prepared for the Saskatchewan Herb and Spice Association/National Herb and Spice Coalition. Ottawa (ON): Agriculture and Agri-food Canada. [Accessed 2018 June 15]. Available from:

https://www.hssa-sk.ca/documents/Good%20Practices%20for%20plant%20identification.pdf

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

Cohen SM, O'Connor AM, Hart J, Merel NH, Te HS. 2004. Autoimmune hepatitis associated with the use of black cohosh: a case study. Menopause: the Journal of the North American





Menopause Society 11(5):575-577.

Ellingwood F. 1983. American Materia Medica, Therapeutics and Pharmacognosy. Sandy (OR): Eclectic Medical Publications [Reprint of 1919 original].

EMEA 2006: European Medicines Agency. Committee on Herbal Medicinal Products (HMPC) Annex 1. Assessment of case reports connected to herbal medicinal products containing *Cimicifugae racemosae* rhizoma (Black cohosh, root). London (UK): European Medicines Agency; July 18, 2006. [Accessed 2018 June 15]. Available from:

 $https://www.bfarm.de/SharedDocs/Downloads/DE/Arzneimittel/Pharmakovigilanz/Risikoinform\ ationen/RisikoBewVerf/a-$

f/cimicifuga_hmpc_assessment.pdf;jsessionid=128DC9FCF883D37DBD54D2BDFC7232EA.1_cid344?__blob=publicationFile&v=3

Felter HW, Lloyd JU. 1983. King's American Dispensatory, Volume 1, 18th edition. Sandy (OR): Eclectic Medical Publications [Reprint of 1898 original].

Frei-Kleiner S, Schaffner W, Rahlfs VW, Bodmer C, Birkhäuser M. 2005. *Cimicifuga racemosa* dried ethanolic extract in menopausal disorders. Maturitas 51(4):397-404.

He K, Pauli GF, Zheng B, Wang H, Bai N, Peng T, Roller M, and Zheng Q. 2006. *Cimicifuga* species identification by high performance liquid chromatography-photodiode array/mass spectrometric/evaporative light scattering detection for quality control of Black Cohosh products. Journal of Chromatographic Science 1112(1-2):241-254.

He K, Zhen B, Kim CH, Rogers L, and Zheng Q. 2000. Direct analysis and identification of triterpene glycosides by LC/MS in Black Cohosh, *Cimicifuga racemosa*, and in several commercially available Black Cohosh products. Planta Medica 66(7):635-640.

Hoffmann D. 2003. Medical Herbalism. Rochester (VT): Healing Arts Press.

Jiang B, Kronenberg F, Nuntanakorn P, Qiu M-H, and Kennelly EJ. 2006. Evaluation of the botanical authenticity and phytochemical profile of Black Cohosh products by high-performance liquid chromatography with selected ion monitoring liquid chromatography-mass spectrometry. Journal of Agricultural and Food Chemistry 54(9):3242-3253.

Lynch CR, Folkers ME, Hutson WR. 2006. Fulminant hepatic failure associated with the use of black cohosh: a case report. Liver Transplantation 12(6):989-992.

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

Mills E, Duguoa J, Perri D, Koren G. 2006. Herbal Medicines in Pregnancy and Lactation. New York (NY): Taylor and Francis.

NIH 2004: National Institutes of Health. Workshop on the Safety of Black Cohosh in Clinical Studies. Bethesda (MD): National Institutes of Health, Department of Health and Human





Services; November 22, 2004. [Accessed 2018 June 15]. Available from: https://nccih.nih.gov/news/events/blackcohosh/blackcohosh_mtngsumm.htm#pdfpdf

Raus K, Brucker C, Gorkow C, Wuttke W. 2006. First-time proof of endometrial safety of the special black cohosh extract (*Actaea* or *Cimicifuga racemosa* extract) CR BNO 1055. Menopause: the Journal of the North American Menopause Society 13(4):678-691.

Tilgner S. 1999. Herbal Medicine from the Heart of the Earth Creswell (OR): Wise Acre Press.

USDA 2018: United States Department of Agriculture, Agricultural Research Service, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [online database]. *Actaea racemosa* L. National Germplasm Resources Laboratory, Beltsville (MD). [Accessed 2018 June 15]. Available from: http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl

Williamson EM. 2003. Potter's Herbal Cyclopaedia: The Authoritative Reference work on Plants with a Known Medical Use. Saffron Walden (UK): The C.W. Daniel Company Limited.

Williamson EM, Evans FJ, Wren RC. 1988. Potter's New Cyclopaedia of Botanical Drugs and Preparations. Saffron Walden (UK): The C.W. Daniel Company Limited.

Wuttke W, Raus K, Gorkow C. 2006. Efficacy and tolerability of the Black cohosh (*Actea racemosa*) ethanolic extract BNO 1055 on climacteric complaints. Maturitas 55(Supplement 1):S583-S591.

Zerega NJC, Mori S, Lindqvist C, Zheng Q, Motley TJ. 2002. Using Amplified Fragment Length Polymorphisms (AFLP) to identify Black Cohosh (*Actaea racemosa*). Economic Botany 56(2): 154-164.

References reviewed

AHPA 2006. United States District Court for Nebraska: Court documents filed on June 2, 2006 for the case of Grant and Beck versus Pharmavite, LLC and Nutraceutical Corporation. Testimony 1 [online]. Silver Spring (MD): American Herbal Products Association. [Accessed 2008 September 19]. Available from:

http://ahpa.org/Portals/0/pdfs/06 0602 BlackCohosh NebraskaCt Testimony1.pdf

AHPA 2006. United States District Court for Nebraska: Decision of September 8th, 2006 on the case of Grant and Beck versus Pharmavite, LLC and Nutraceutical Corporation [online]. Silver Spring (MD): American Herbal Products Association. [Accessed 2008 September 19]. Available from: http://ahpa.org/Portals/0/pdfs/06_0908_BlackCohosh_NebraskaDistrictCt.pdf

Brinker F. 2001. Herb Contraindications and Drug Interactions, 3rd edition. Sandy (OR): Eclectic Medical Publications.





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

Cohen SM. 2004. Black Cohosh and Hepatotoxicity: Case Reports. Hepatitis Associated with Black Cohosh, Case # 2. In: Workshop on the Safety of Black Cohosh in Clinical Studies. [online]. Bethesda (MD): National Institutes of Health, Department of Health and Human Services. [Accessed 2008 September 19]. Available from: http://nccam.nih.gov/news/pastmeetings/blackcohosh_mtngsumm.pdf

Der Marderosian A, Beutters JA, editors. 2002. The Review of Natural Health Products. 3rd edition. St. Louis (MO): Facts and Comparisons[®], a Wolters Kluwer Company.

EMEA 2006: European Medicines Agency. EMEA public statement on herbal medicine products containing *Cimicifugae racemosae rhizome* (Black cohosh, root) – serious hepatic reactions [online]. London (UK). [Accessed 2008 September 19]. Available from: http://www.emea.europa.eu/pdfs/human/hmpc/26925906en.pdf.

Geller SE, Studee L. 2006. Contemporary alternatives to plant estrogens for menopause. Maturitas 55(Supplement 1):S3-S13.

Gurley B, Gardner SF, Hubbard MA, Williams DK, Gentry B, Khan IA, Shah A. 2005. In vivo effects of goldenseal, kava kava, black cohosh, and valerian on human cytochrome P450 1A2, 2D6, 2E1, and 3A4/5 phenotypes. Clinical Pharmacology and Therapeutics 77(5):415-426.

Gurley B, Hubbard MA, Williams DK, Thaden J, Tong Y, Gentry B, Breen P, Carrier D, Cheboyina S. 2006. Assessing the clinical significance of botanical supplementation on human cytochrome P4503A activity: comparison of a milk thistle and black cohosh product to rifampin and clarithromycin. Journal of Clinical Pharmacology 46:211-213.

HC 2006: Health Canada. Advisories, Warnings and Recalls [online]. Ottawa (ON): Health Canada. [Accessed 2008 September 19]. Available from: http://www.hc-sc.gc.ca/ahc-asc/media/advisoriesavis/_2006/2006_72_e.html

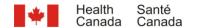
Hernández Muñoz G. Pluchine S. 2003. Cimicifuna racamosa for the treatment of hot flashe

Hernández Muñoz G, Pluchine S. 2003. *Cimicifuga racemosa* for the treatment of hot flashes in women surviving breast cancer. Maturitas 44(Supplement 1):S59-S65.

Hirschberg AL, Edlund M, Svane G, Azavedo E, Skoog L, von Schoultz B. 2007. An isopropanolic extract of black cohosh does not increase mammographic breast density or breast cell proliferation in postmenopausal women. Menopause: the Journal of the North American Menopause Society 14(1):89-96.

Jacobson JS, Troxel AB, Evans J, Klaus L, Vahdat L, Kinne D, Lo KM, Moore A, Rosenman PJ, Kaufman EL, Neugut AI, Grann VR. 2001. Randomized trial of black cohosh for the treatment of hot flashes among women with a history of breast cancer. Journal of Clinical Oncology 19(10):2739-2745





Kronenberg F and Fugh-Berman A. 2002. Complementary and alternative medicine for menopausal symptoms: A review of randomized, controlled trials. [online]. Annals of Internal Medicine 137:805-813. [Accessed 19 September 2008]. Available from: http://www.annals.org/cgi/reprint/137/10/805.pdf

Levitsky J, Alli TA, Wisecarver J, Sorrell MF. 2005. Fulminant liver failure associated with the use of black cohosh. Digestive Diseases and Sciences 50(3):538-539.

Liske E, Hänggi W, Henneike-von Zepelin H-H, Boblitz N, Wüstenberg P, Rahlfs VW. 2002. Physiological investigation of a unique extract of Black cohosh (*Cimicifuga racemosa* rhizome): a 6-month clinical study demonstrates no systemic estrogenic effect. Journal of Women's Health and Gender-based Medicine 11(2):163-174.

Lontos S, Jones RM, Angus PW, Gow PJ. 2003. Acute liver failure associated with the use of herbal preparations containing black cohosh. Medical Journal of Australia 179: 390-391.

Mahady G. 2005. Black cohosh (Actaea/Cimicifuga racemosa) Review of the clinical data for safety and efficacy in menopausal symptoms. Treatments in Endocrinology 4(3):177-184.

McGuffin M, Hobbs C, Upton R, Goldberg A, editors. 1997. Botanical Safety Handbook. Boca Raton (FL): CRC Press.

MHRA 2006. The Medicines and Healthcare products Regulatory Agency. MHRA action on safety concerns over Black cohosh and liver injury [online]. London (GB): Crown Copyright. The Medicines and Healthcare products Regulatory Agency, an executive agency of the Department of Health. [Accessed 30 January 2008]. Available from: https://www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&useSecondary=true&ssDocName=CON2024116&ssTargetNodeId=389

Mills S, Bone K. 2000. Principles and Practice of Phytotherapy. Toronto (ON): Churchill Livingstone.

Nappi RE, Malavasi B, Brundu B, Facchinetti F. 2005. Efficacy of *Cimicifuga racemosa* on climacteric complaints: a randomized study versus low-dose transdermal estradiol. Gynecological Endocrinology 20(1):30-5.

Osmers R, Friede M, Liske E, Schnitker J, Freudenstein J, Henneike-von Zepelin H-H. 2005. Efficacy and safety of isopropanolic black cohosh extract for climacteric symptoms. Obstetrics and Gynecology 105(5):1074-1083.

Peirce A. 1999. The American Pharmaceutical Association Practical Guide to Natural Medicines. New York (NY): William Morrow and Company, Inc.

Pockaj BA, Gallagher JG, Loprinzi CL, Stella PJ, Barton DL, Sloan JA, Lavasseur BI, Rao RM, Fitch TR, Rowland KM, Novotny PJ, Flynn PJ, Richelson E, Fauq AH. 2006. Phase III





doubleblind, randomized, placebo-controlled crossover trial of black cohosh in the management of hot flashes. Journal of Clinical Oncology 24(18):2836-2841.

TGA 2006: Therapeutic Goods Administration. New Labelling and Consumer Information for Medicines Containing Black cohosh (*Cimicifuga racemosa*) [online]. Symonston (AU): Australian Government Department of Health and Ageing, Therapeutic Goods Administration. [Accessed 19 September 2008]. Available from: http://www.tga.gov.au/cm/0705blkcohosh.htm

Upton R, editor. 2002. American Herbal Pharmacopoeia and Therapeutic Compendium. Black Cohosh Rhizome. Santa Cruz (CA): American Herbal Pharmacopoeia.

Vermes G, Bánhidy F, Acs N. 2005. The effects of remifemin on subjective symptoms of menopause. Advanced Therapy 22(2):148-154.

Whiting PW, Clouston A, Kerlin P. 2002. Black cohosh and other herbal remedies associated with acute hepatitis. Medical Journal of Australia 177(8):440-443.

Wichtl M, editor. 2004. Herbal Drugs and Phytopharmaceuticals: A Handbook for Practice on a Scientific Basis, 3rd edition. Stuttgart (D): Medpharm GmbH Scientific Publishers.

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

Wuttke W, Gorkow C, Seidlova-Wuttke D. 2006. Effects of black cohosh (*Cimicifuga racemosa*) on bone turnover, vaginal mucosa, and various blood parameters in post-menopausal women. Menopause 13(2):185-196.

Wuttke W, Seidlova-Wuttke D, Gorkow C. 2003. The *Cimicifuga* preparation BNO 1055 vs conjugated estrogens in a double-blind placebo-controlled study: effects on menopause symptoms and bone markers. Maturitas 44(Supplement 1):S67-S77.

