

BLACK COHOSH

Actaea racemosa L.

Family

Ranunculaceae. The buttercup family making it a cousin of pulsatilla (*Anemone pulsatilla*) which has similarities. Previously known as *Cimicifuga racemosa*. There is a history of taxonomic uncertainty with this species dating back to Carl Linnaeus. On the basis of structural characteristics of the inflorescence and seeds he had placed the species into the genus *Actaea*. This was later revised by Thomas Nuttall who reclassified the species to the genus *Cimicifuga*. Nuttall's classification was based solely on the dry follicles produced by black cohosh, which are typical of species in *Cimicifuga*. Recent data from structural and gene analyses demonstrate that black cohosh is more closely related to species of the genus *Actaea* than to other *Cimicifuga* species.

This has prompted the revision to *Actaea racemosa* as originally proposed by Linnaeus. Despite its similar common name blue cohosh (*Caulophyllum thalictroides*) belongs to another family, Berberidaceae (the barberry family), and is not closely related to black cohosh.^{1,2}

Parts Used

Root.

Description

Black cohosh is a hardy, perennial wildflower native to eastern North America and Canada. It grows up to three meters tall in moist or dry woods, has three-pinnately compound leaves (leaves which are divided into smaller leaves on a twig) with toothed edges and white blooms with feathery inflorescences.³



Traditional Use

Black cohosh has a long and varied history of medicinal use in both traditional and allopathic medicine. Black cohosh was used by North American indigenous people and the Eclectics for gynaecological conditions such as pain associated with premenstrual syndrome, pain during childbirth and menopausal complaints, including migraines. It has traditionally been used in China, Europe and North America for centuries to treat a variety of illnesses, including menopausal symptoms and osteoporosis. In modern times its most notable clinical application has been to reduce the frequency and severity of hot flushes in menopause.^{4,5}

For those interested in traditional versus evidence-based medicine an interesting research paper used black cohosh as an example in which disregard for the ethnobotanical and ethnopharmacological usages of a plant has perhaps hindered modern scientific attempts to understand the mechanism of action of its active constituents and attribute cause to effect. The authors said research on black cohosh's mode of action has historically focused on its presumed hormonal (phytoestrogenic) activity but very recent work suggests that it may in fact be acting as an antinociceptive agent. Re-examination of some of the writings of 19th and 20th century physicians and folk literature suggests that this mode of action may have been overlooked in modern experimentalists' *in vitro* and animal studies and in the very few well conducted human trials to date. The authors concluded that the common folk perception of this plant as a "remedy for female problems" may thus require revision as it may possess more general analgesic properties.⁶

In the broader context, ethnopharmacological indications for other herbal remedies must be revisited in light of the explosion in understanding of mechanisms of action of plant constituents. The researchers said that over the last century much of the serious scientific research has occupied itself with clinical studies focused on the role of specific compounds present in plants for specific indications. "When viewed with this parochial lens the field of vision regarding these plants has become narrowed and, by necessity, self-limiting.

This "single drug, single target" philosophy has so guided (and misguided) much of the research, such that the context within which many of these phytochemicals and even their synthetic or semi-synthetic derivatives are viewed has had limited scope. It has only been with the recent advent of high throughput screening and the "-omics" revolution that unanticipated uses for some of these compounds are being discovered, and much of this is driven by pharmaceutical companies' lack of an efficient (productive and cost-effective) synthetic pipeline. It is against this backdrop that black cohosh has been regarded in modern times as a herb with compounds that are effective for the amelioration of menopausal symptoms such as hot flushes. However, we suggest that perhaps this view should be broadened in light of new understandings that modern techniques have brought into focus about the mechanism(s) by which this long understood traditional use indication may function." The researchers concluded: "Future research will be hindered if the ancient wisdom is ignored and the synergy of the plant matrix is overlooked. A small number of studies in the Western medicine tradition have now begun to consider the link between black cohosh and pain, acknowledging what has been known for a long time."⁷

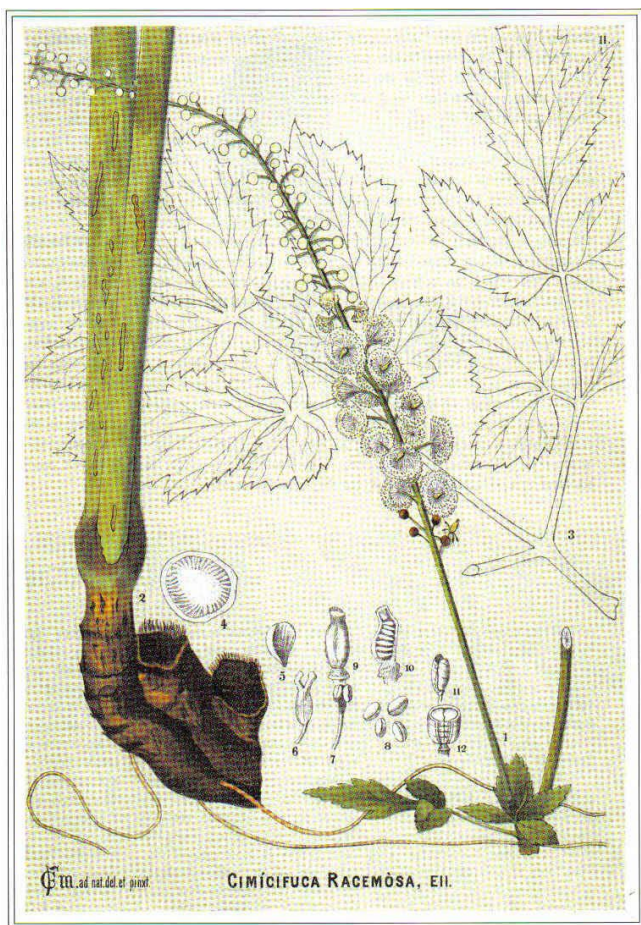
Internationally renowned herbalist Rosemary Gladstar concurs and says black cohosh is not just 'the menopause herb', it has a long history of being used for the nervous system".⁸ American herbalist Jim McDonald echoes these sentiments and says black cohosh is for dull, achy inflammatory pain whether its muscle, uterine, tension or irritation in the prostate and headaches.⁹

Constituents

Triterpene glycosides including actein and cimigoside, resins, volatile oil, tannin, salicylates, ranunculin which yields anemonin.¹⁰

Actions

Anodyne, antispasmodic, sedative, hormone balancer, anti-inflammatory, antirheumatic, uterine tonic.



Pharmacological Activity

A systematic review of *in vivo* and *in vitro* studies will not be attempted here. A small selection of recent important publications, with an emphasis on unique human studies with relevance for clinical efficacy, will be reviewed in this monograph. Isolated constituent studies will not be included.

There is a dearth of recent clinical trial data for whole herb, full spectrum black cohosh. There is considerable variability in the preparations used in clinical trials and in the results obtained. The majority of studies are performed on patented, standardised products containing black cohosh as an active ingredient which have a large evidence base. Some of the trade names of these commercial products are Remifemin, Remixin and Klimadynon. Black cohosh extract is most often standardised to triterpene glycoside content despite the fact that the active constituents responsible for activity (particularly in relation to alleviation of hot flashes) are unknown. A number of triterpenes in

black cohosh have activity individually. Routine measurements of all of these compounds are not practical, both due to cost and to the very low levels present for some of the triterpenes. This monograph will mention some of these standardised extracts with the caveat that evidence from studies on these products may only be partially relevant to the whole root extract and results cannot be extrapolated to full spectrum, whole herb black cohosh products.^{11,12}

Multiple human clinical studies support the efficacy of black cohosh in treating menopausal symptoms however the exact mechanism by which it elicits its effects have not yet been fully elucidated.¹³ Black cohosh is thought to modulate the neurotransmitter signalling pathways in the brain. It may be effective because it functions as a phytoestrogen, a plant based compound that mimics the action of the hormone oestrogen, however there is debate as to whether it can be classified as a true phytoestrogen. The hormonal modulating effects of black cohosh are now thought to result from superior synergistic actions of several of the plant's active constituents, in particular the triterpene glycosides. Researchers now generally consider black cohosh to be a selective oestrogen receptor modulator (SERM) with additional anti-inflammatory, antioxidant and serotonergic properties. It is generally agreed that black cohosh reduces the secretion of luteinising hormone (LH) through at least three active constituents working synergistically. Increased levels of LH are connected to a number of female gynaecological complaints including polycystic ovarian syndrome (PCOS), infertility, miscarriage, menopausal symptoms and ovarian dysfunction.^{14,15,16}

Menopause Activity

A 2020 study found that black cohosh (trade name Ze 450) can be beneficial for alleviating menopause symptoms. Black cohosh markedly reduced menopausal symptoms over one year in 32 women.¹⁷

In a recent human study both black cohosh (trade name Cimifugol) and evening primrose oil were effective at reducing the severity of hot flashes and improving quality of life however black cohosh seemed more effective than evening primrose oil because it was able to reduce the number of hot flashes too. In the study 80 menopausal women who were experiencing hot flashes were supplemented with 20mg tablets of black cohosh daily for eight

weeks. They reported significantly fewer and less severe hot flushes than before they started the supplement.¹⁸

A systemic review assessing the effects of black cohosh for the treatment of menopausal vasomotor symptoms concluded that black cohosh improved overall symptoms by 26%. St. John's wort (*Hypericum perforatum*) appeared to complement the effects of black cohosh so using them together may be useful.¹⁹

Several studies have indicated that black cohosh might protect against menopausal bone loss (osteoporosis). In one of them the benefits of black cohosh (trade name CR BNO 1055) versus oestrogen or placebo therapy in 62 menopausal women found that black cohosh is as effective as conjugated oestrogens in reducing menopausal complaints when compared with placebo. In the 12-week double-blind study black cohosh and conjugated oestrogens were found to have beneficial effects of similar magnitude on bone metabolism.²⁰ Another study concluded that black cohosh extracts at low doses are effective at improving menopausal complaints but are devoid of adverse oestrogenic effects. These findings strengthen the role of black cohosh extracts as substitutes for hormone replacement therapy.²¹

A twelve week study in 34 women with uterine fibroids and menopausal symptoms found that supplementing daily with 40mg of black cohosh (Remifemin) may decrease the size of uterine fibroids by up to 30%.²²

Researchers have found that black cohosh (Cimifugol) is linked to significant improvements in psychological symptoms. The conclusion was reached after a review of two trials assessing the effectiveness of black cohosh on psychological symptoms in menopausal women.^{23,24}

Black cohosh improved sleep quality and duration in 42 early post menopausal women with sleep disturbance. The randomised, double-blind, placebo-controlled trial lasted for six months.²⁵

Women's Health and Fertility Activity

Research indicates that black cohosh may improve the effectiveness of the fertility drug Clomid (clomiphene citrate) in people who are infertile, increasing their chances of becoming pregnant.

Human studies show an improvement in pregnancy rates, or ovulation, in women with infertility who took black cohosh supplements (Klimadynon) along with Clomid. In one of the studies adding black cohosh to Clomid-induction cycles, with timed intercourse, in PCOS improved cycle outcomes and pregnancy rates.^{26,27,28,29}

Cancer Activity

Because black cohosh has potentially oestrogenic activity, meaning it could behave like the hormone oestrogen, it has been postulated that it may worsen breast cancer or increase breast cancer risk. Most studies show that black cohosh does not affect breast cancer risk. A systematic review of black cohosh use in women with, or at risk of, breast cancer presented two observational studies which found no association between black cohosh and risk of breast cancer and two studies which reported significant reductions in risk of primary breast cancer among postmenopausal women and risk of recurrence.³⁰

Indications

- For the relief of menopausal symptoms such as hot flushes, sweating, mood swings, depression, anxiety, vaginal dryness, insomnia
- Premenstrual syndrome, painful menstruation, ovarian and uterine pain, PCOS, infertility, miscarriage
- Childbirth and as a partus preparator in the final trimester of pregnancy, mastitis
- Nerve and muscle pain including rheumatic pain, musculoskeletal pain, sciatica and neuralgia
- Headaches, tinnitus
- Respiratory disorders such as whooping cough and asthma

Energetics

Cooling.

Use in Pregnancy

Not recommended in the first and second trimester of pregnancy. Can be used as a partus preparator and during childbirth however there are no clinical trials to support the safety of this practice.^{34,35}

Contraindications

Several case reports link black cohosh to liver failure or autoimmune hepatitis however there is no conclusive evidence that black cohosh is the cause of liver damage in these patients. Until more is known monitor liver function in patients who take black cohosh. American herbalist Jim McDonald says that hepatotoxicity has been associated with standardised extracts however this has not been associated with the plant. He also says if too much black cohosh is taken, particularly the standardised, it can cause a dull achy headache.^{36,37}

Drug Interactions

Possible beneficial interaction with anticancer treatments such as tamoxifen so women on these medications may require lower doses. It is recommended that patients taking the

chemotherapy medications cisplatin or doxorubicin should avoid black cohosh until safety can be confirmed. A beneficial interaction with the fertility drug clomiphene citrate is possible under professional supervision.

Administration and Dosage

Liquid Extract:	1:2
Alcohol:	60%
Weekly Dosage: ⁴⁰	10 to 40mL

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