Expert Herbal Reality Resource
Gravel Root

Names

Botanical Name: *Eutrochium purpureum* (L.) E.E. Lamont, (previously *Eupatorium purpureum* L.)

Family: Asteraceae

Common names: Gravel root, Joe-pye weed, Jopi weed, Queen of the Meadow, Purple boneset, Trumpet weed, Kidneywort

Description

Gravel root sits within a genus of 38 species of hardy and semi-hardy perennials and shrubs.

Native to eastern USA, Gravel root is a tall, handsome, clumping perennial with whorls of finely-toothed, lance-shaped leaves on unbranched stems. Dome-shaped corymbs of feathery lavender-pink flowers appear in mid to late summer, their scent redolent of vanilla. It can get up to around 3 meters in height with a spread of one metre. Often found on the borders of woodland, river sides and thickets, it favours a sunny or partially-shaded spot.

This plant hybridizes with other species of *Eutrochium* and can show variability in appearance of leaf shape. The fragrant flowers attract a number of different visitors, including butterflies, moths and native bees.

The roots and rhizomes are harvested for medicinal use in the autumn after the plant has finished flowering. (1)

Constituents

- **Volatile oil**: 0.07%
- **Flavonoids**: euparin, euparone and cistofolin
- **Resin**: Eupurpurin

Traditional use

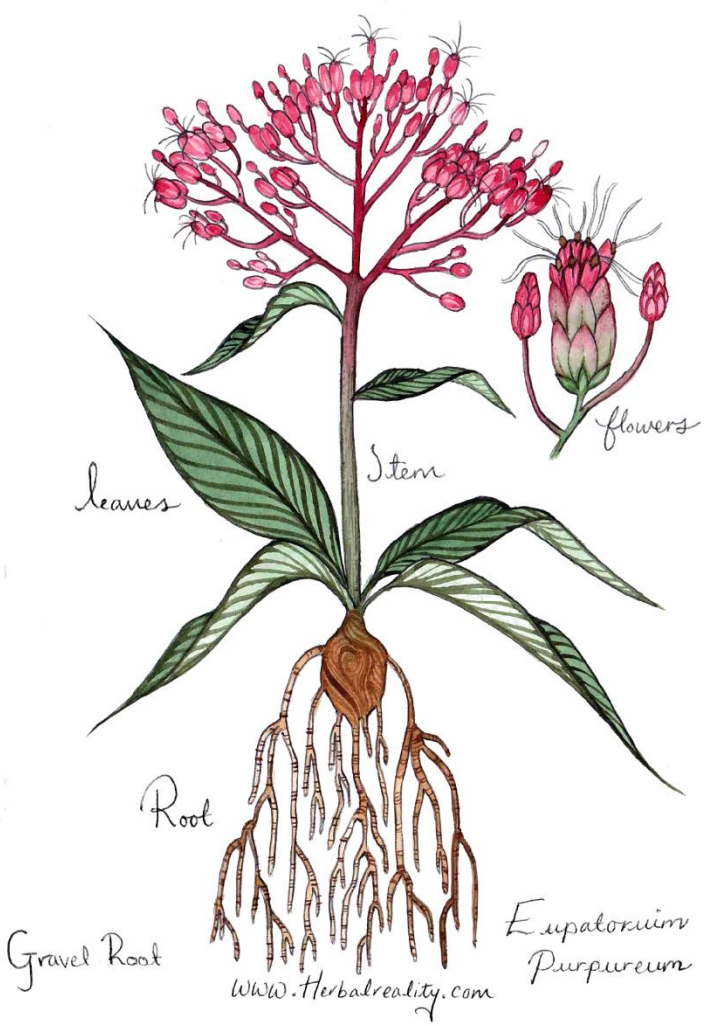
Traditionally gravel root was used in a similar way to its relative Boneset (*Eupatorium perfoliatum*) for fevers and as a tonic for debility, especially in older people.

The plant was widely used by Native Americans. The Cherokee used the roots as a remedy for the kidneys and for rheumatism. It was also used as a partus preparator (to prepare the womb for labour) and to tone the uterus. The Chippewa used it when with a cold, inhaling the vapours from an infusion of the plant. The Potawatomi people used a poultice of the leaves for burns and the Navajo used the herb as an antidote for poison. (2)

Adopted by white settlers it was also used for urinary infection, gravel and stones and as a diaphoretic to help break a fever.

Gravel root was considered a valuable remedy for dropsy – a term once used for fluid retention/oedema and stranguary – another old term used for painful spasm in the bladder and urethra with frequent need to urinate, often whilst only passing small amounts of urine.

Also used for blood in the urine, gout and rheumatism, it was said to exert a special influence on chronic renal and cystic issues. (3)



Traditional actions

Western herbal actions are

- Diuretic
- Anti-lithic
- Anti-rheumatic
- Tonic
- Astringent
- Cooling
- Descending

What practitioners say

Genitourinary tract: In urinary tract infections it has been put to good use when combined with demulcents such as corn silk and urinary antiseptics such as thyme or buchu.

Useful in cystitis, urethritis, dysuria (painful urination) and prostatitis, it combines well with pasque flower for such situations.

Musculoskeletal: The diuretic properties of gravel root make it helpful in osteoarthritis and gout, drawing out impurities by increasing the flow of urine. Liver remedies are often combined to assist the body excrete waste products via the bowel, thus utilising both these routes of elimination.

Evidence

There is scant scientific data on the medicinal actions of gravel root.

In vitro anti-inflammatory activity has been demonstrated from an isolated constituent of gravel root known as cistifolin, a benzofuran flavonoid which may contribute to the plants reputation as an anti-rheumatic herb. (7)

Please also refer to the safety section.

Safety

Contraindicated in children, pregnancy and lactation.

Whilst gravel root can help in reducing the risk of recurrent issues with urinary gravel, kidney stones require conventional medical attention.

Pyrrolizidine alkaloids (PAs) are naturally occurring phytochemicals found in certain plant families. They are produced by the plants as a defence mechanism against being eaten. Some PAs can be carcinogenic, hepatotoxic and mutagenic.

It is possible, but certainly by no means definite, that Gravel root may contain hepatotoxic pyrrolizidine alkaloids. Adulteration of Gravel root with other family members such as Boneset can be a risk, along with that of the common occurrence of interspecies hybridization, which has the potential to cause an alteration in the plant's phytochemical profile. (5)

Overall the research is contradictory and contamination issues are a likely possible issue here.

The European Herbal and Traditional Medicines Professional Association (EHTPA) have decided at present to adopt a watch and wait approach on both boneset and gravel root until more formal research is undertaken where identification/DNA bar coding can be used to identify adulteration issues.

Chemotype and hybridisation issues are more complex but the EHTPA are working with specialists on this.

They are liaising with herbal suppliers to see what can be done to ensure contamination and adulteration risks are limited. (6)

Dosage

2-4g dried root and rhizome one to three times daily
Decoction: half to a teaspoon simmered in a mug-sized amount of water for 15-20 minutes. Half a cup per dose
3-8 ml per day 1:3 tincture

Parts used

The roots and rhizomes harvested in the autumn after the plant has finished flowering.

References

1. Flora of North America Editorial committee (2006) Magnoliophyta: Asteridae, part 8: Asteraceae, part 3.21: i-xxii, 1-616. Inflorescences of North America. Oxford University Press, New York
2. Moerman, D.E. (1998) Native American Ethnobotany; Timber Press, Inc.: Portland, OR, USA. ISBN 9780881924534

3. Grieve, M (1931): A Modern Herbal. *Tiger press*. Ed 1992. ISBN 1-83-5501-249-9
4. Plants for a future. www.pfaf.org Accessed March 2022.
5. Colegate, S et al. (2018): Potentially toxic pyrrolizidine alkaloids in *Eupatorium perfoliatum* and three related species. Implications for herbal use as boneset. Phytochemical analysis. Vol 26 (6) 613-626
6. Etheridge, C, Director of the European Herbal and traditional Medicines Professional Association. Personal communication. 28/3/22
7. Habtemariam, S. (2001): Antiinflammatory activity of the antirheumatic herbal drug, gravel root (*Eupatorium purpureum*): further biological activities and constituents. Phytotherapy Research.Vol 5 (8) 687-690
8. British herbal pharmacopoeia. (1991) Scientific Committee, BHMA. ISBN 0 903032 07 4