Chimaphila umbellata Monograph

By Jay Bartel
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Introduction

Pipsissewa is a North American shrub that has been used for centuries to treat a wide variety of conditions and is used by clinical herbalists in present to address a variety of concerns, especially issues within the genitourinary system.
This monograph is an attempt to synthesize and analyze the available information about Pipsissewa to date, with the intention of encouraging learning and personal and collective health empowerment.

Figure 1

No monograph on *C. umbellata* would be complete without acknowledgement of its historical and current use by indigenous people, an ethnobotany known to myself and other settler herbalists through the process of colonization— a genocidal campaign of displacement and cultural erasure perpetrated by white settlers against indigenous people that continues to this day. It is with humility, anti-colonial solidarity, and respect that this author as a white settler writes about Pipsissewa, understanding that its context for use in so-called "Western herbalism", understanding that it is the role of settlers, especially settler herbalists, to be accountable to this genocidal history, and strive to decolonize their herbal praxis in more than just words.

Botanical Nomenclature

Latin Name: *Chimaphila umbellata*
Family: Ericaceae; formerly Pyrolaceae; the heather family

Common Names

Bitter Winter, Bitter Wintergreen, *Chimaphila*, *Chimaphila corymbosa*, *Chimaphila umbellata*, Chimaphile à Ombelles, Ground Holly, Herbe d'Hiver, Herbe à Peigne, Holly, King's Cure, King's Cureall, Love in Winter, Prince's Pine, Pyrole en Ombelle, Rheumatism Weed, Spotted Wintergreen, Wintergreen (Bancroft, 2019), Butter Winter, Rheumatism Weed (Grieve, 1971, p. 639).

Parts Used

Traditionally the whole plant, including the root (Grieve, 1971, p. 639), was used, though commercial medicinal use today commonly prefers the fresh leaves (Bancroft, 2019).

Identification

Pipsissewa is common throughout the northern United States and southern Canadian coniferous forests. In the lower half of the continent, Pipsissewa is found quite densely in the Appalachian forests (Penegelly & Bennett, 2011). Pipsissewa is a native evergreen low shrub or perennial rhizomatous herb.

Larger groupings of Pipsissewa make effective groundcovers. The woody stems are usually 4 to 12 inches (10-30 cm) tall and the leathery, whorled leaves are sharply serrate. The fertile stems are generally erect and may have 2 to 15 flowers. Fruits are depressed, globose capsules which often persist through the winter. It reproduces both sexually and vegetatively. Flowers have been observed being pollinated by bumblebees and staphylinid beetles. Pipsissewa develops numerous, minute seeds. Their dispersal mechanism has not been documented. Pipsissewa produces long rhizomes that normally grow at a fast rate.

There are three subspecies of *Chimaphila umbellata*. Subspecies *acuta* is found in New Mexico, Arizona, and Colorado. Subspecies occidentalis is found on the west coast and extending as far north as Alaska. Subspecies cisatlantica is found throughout the midwest and on the east coast of the United States (USDA, 2019).

Flower: The flowers cluster in racemes. Each flower has 5-petals. There are typically 3 to 7 nodding flowers on slender stalks at the end of a stem that stands well above the upper leaves. Flowers are ½ to ¾ inch across, with 5 white petals pink at the base, spreading like an umbrella around a central pistil, along with a halo of 10 prominent orbiting anthers.

Leaves and stem: Leaves attach opposite each other in a whorl shape. Leaves are evergreen and simple oblong to lance shaped. The leaves cluster in groups of 3 to 8 with the lower leaves smaller and nearly oval, 1¼ to 2 inches long, 1/3 to ¾ inch wide, the upper surface very shiny with distinct sharp teeth along edges, on a short stalk. The stems are woody and grow 3 to 4 new branches each year. These new branches slowly root down to form colonies. The leaves themselves are very

durable, and can last up to four years as new branch proliferation continues.

Fruit: Fruits are upright sectioned capsules about ¼ inch in diameter. Their color is typically reddish brown with distinct button-like cap from the enlarged stigma. The capsule dries to a dark brown and persists through winter (USDA, 2019)

Differentiation from similar plants: *Chimaphila maculata*, or Spotted Wintergreen, is very similar in appearance, but its leaves are a deep olive-green color with greenish-white veins. When fresh and bruised, the volatile oils emit a strong smell that dissipates when dry. Medicinally, the whole plant used, including roots, though stem and leaves are most commonly used. It is a diuretic and urinary antiseptic, used for cystitis. The fluid extract is considered most efficacious by some (Grieve, 1971, p. 639).

Commercial Sources and Handling

Because it does not lend itself well to commercial cultivation, what is available commercially has been wildcrafted. When purchasing or wildcrafting, it is important to adhere to ethical wildcrafting standards and avoid overharvesting. It is available dried through Mountain Rose and Starwest Botanicals (Bancroft, 2019).

Growth and Harvest

Biodiversity sources consider Pipsissewa to be “globally secure”, though regional classifications vary. This is largely because *C. umbellata* requires an organic litter layer of needles or leaves and grows best in rich, undisturbed soils. Therefore, any activities resulting in soil disturbance or soil compaction - even walking on rhizomes in the soil - can threaten local populations.

With the expansion of logging industry, we see a decline in Pipsissewa population, as it requires quite a bit of shade to grow. Similarly, though small fires seem to have a beneficially impact on population density, large and long-lasting fires pose a formidable threat to this species, which is slow-growing and slow-propagating (Penegelly & Bennett, 2011). Pipsissewa is on the United Plant Savers "to watch" list (Bancroft, 2019).

Wildcrafting: Much of the commercially available *C. umbellat*a is wildcrafted. Its ecological distribution in North America is typically throughout dense coniferous forest environments and out-of-the-way places. It likes acidic environments, and grows on humus or rotting wood in well-drained locations with medium to coarse textured soils. It prefers low to mid-elevation and can survive in a variety of soil
moistures, but decreases as precipitation and elevation increase (Skinner, 2012). *C. umbellata* is somewhat fire resistant, medium drought tolerant, and shade tolerant. It does not tolerate physical disturbance well and is not found in disturbed sites, and is an indicator of a recovery site or old-growth site in many locations throughout the Northwest. It seems to have a symbiotic relationship with its surrounding environment, so should be ethically wildcrafted with care (Bancroft, 2019).

Growing: Pipsissewa is hardy to zone (UK) 4. It is in leaf all year, in flower from July to August. The species is has both "male" and "female" parts and is pollinated by insects. Pipsissewa is often difficult to propagate and grow in cultivation because it has certain mycorrhizal associations in the wild and these are necessary if the plant is to thrive (Plants for a Future, 2019; Bancroft, 2019).

To germinate, Betzy Bancroft advises to mix the dust-like seeds with saw dust and sprinkle them within the drip line of a conifer tree. Similarly, a source from University of Washington guides to sow seeds in moist sphagnum peat and add some soil that was collected around an existing population. This process will inoculate the soil with mycorrhizae. Seedlings should be kept in the shade. Once established, the plant can be propagated by seed and by rhizome (Bancroft, 2019).

Harvest: Because *C. umbellata* is threatened, it is best to follow stringent wildcrafting and harvesting practices. Betzy Bancroft advises to take a few leaves from each plant--with the plant's permission--and not more.

Taste and Odor

Betzy Bancroft: Salty, mineral, astringent (Bancroft, 2019).

Maeve Grieve: dried leaves have only a slight smell and taste, but fresh leaves are sweet-smelling and taste astringent bitter (Grieve, 1971).

Energetics

Cool and dry

Physiological Actions

Alterative, antimicrobial, anti-inflammatory, astringent, diuretic, short-term tonic (Bancroft, 2019).

Specific Indication and Patterns

David Winston: Chronic, low-grade infections of the genitourinary tract.
Eclectics: Scrofulous conditions (tubercular afflictions, i.e. swollen lymph)

Old herbal texts: Topically in salves for wounds, decocted in wine for "internal wounds", ulcerations (Bancroft, 2019).
Thomas Easley: chronic low grade infections of the genitourinary tract (Easley, 2015).
Maeve Grieve: cardiac and kidney diseases, diabetes, and skin diseases as a rubefacient (Grieve, 1971).

Traditional Uses

Indigenous or First Nations People, generally: People have been using Pipsissewa for centuries as medicine and as part of cultural practices in the land that is now called North America. In what is now called Appalachia— the region surrounding the Appalachian mountains— indigenous people having been using Pipsissewa to address a variety of ailments for centuries. The *Chimaphila* that grows in southern Appalachia is *C. maculata*, whereas in northern Appalachia historical records are likely referring to *C. umbellata*. According to herbalist Tommie Bass, Pipsissewa has been used 'ever since time' for treating rheumatism, as well as for kidney and liver disorders. Combined with mullein (*Verbsacum spp*.) it was used to relieve bedwetting in children. Pipsissewa is still used medicinally in Appalachia for its diuretic, tonic, and astringent properties for conditions ranging from skin eruptions to cancer, kidney disorders, ascites, and more. In what is now called Canada Pipsissewa was used for gonorrhea, kidney disorders, rheumatic conditions, head colds, and tuberculosis and for promoting appetite and warding off disease (Penegelly & Bennett, 2011). What follows is a summary of recorded uses of Pipsissewa by indigenous groups prior to the mid 1900s.

Abenaki: colds and nasal congestion (Rousseau, 1947).
Blackfoot: for smoking.
Catawba: as an orthopedic aid and analgesic.
Chippewa: venereal disease, ophthalmics.
Cree: vascular health in general, specifically as an anti-hemorrhagic, pulmonary health, and as an orthopedic aid.

Delaware: for vascular health in general, specifically for the blood, pulmonary health, urinary health, venereal disease, as an expectorant, tuberculosis.

Flathead: ophthalmics.

Karok: as an orthopedic aid.

Kutenai: kidney disease, ophthalmics.

Malecite: blood health, tuberculosis.

Menominee: as an adjuvant, blood health, and gynecological health (Native American Ethnobotany, 2019).

Mi'kmaq: tuberculosis (Bancroft, 2019), rheumatism, blood health, kidney disorders, urinary disorders, gastrointestinal disorders, dermatology (Native American Ethnobotany, 2019).

Mohegan: dermatology.

Montagnais: as a diaphoretic.

Montana: for smoking, as a febrifuge.

Nanticoke: miscellaneous diseases**.**

Ojibwe: gastrointestinal disorders.

Okanagan: dermatology, gastrointestinal disorders (Native American Ethnobotany, 2019).

Eclectic, generally: For scrofulous disorders of all kinds. Primary used as a urinary antiseptic herb, where cystitis presents with mucus, pus, or blood (Penegelly & Bennett, 2011). Betzy Bancroft notes that Eclectic genitourinary uses focused on those from excessive dampness or with scanty urine. Examples of genitourinary use include: urethritis, mild nephritis, prostatitis, cystitis, dysuria with smarting and burning associated with urination, chronic irritation of the urethra, prostate and kidney, ascites, and atonic, foul-smelling urinary states. Other Eclectic uses include: tuberculosis, scrofulous conditions, dropsy, rheumatism, mastitis (Bancroft, 2019).

Ellingwood: as an alterative, stimulating waste, a tonic giving strength to the body, and a diuretic, removing dropsical accumulations, aids in restoring the excretory functions to a normal condition, it tends to remove irritation of the urinary tract and kidneys, lesions of the skin and lymphatic glands, and deterioration of the blood, caused by the presence of waste products, the result of defective catabolism. Where there is inflamed and swollen prostate gland, with discharge of prostatic fluid, urine thick, ropy, with bloody sediment, itching and pain in the urethra and bladder, strangury, discharge, obstinate and ill conditioned ulcers. In dropsy associated with debility and enlarged glands (Pengelly & Bennett, 2011).

King: Diuretic, tonic, alterative, and astringent. Rubefacient when applied topically. For genitourinary disorders in which there is an atonic or debilitated state,with scanty urine, but excessive voiding of mucus or blood; smarting or burning pain with dysuria; chronic irritation of the urethra and prostate;chronic relaxation of the bladder walls; chronic prostatitis, with vesical catarrh.

Felter and Lloyd: Atonic and debilitated states of the urinary organs, with pus or blood in the urine; dysuria with burning pain, chronic bladder or prostate irritation, including prostatitis with vesical catarrh (Penegelly & Bennett, 2011).

Fyfe: Chronic vesical and renal affections, with mucopurulent sediment; smarting pain and frequent urination (Schar, n.d).

Physiomedical, generally: to strengthen debilitated kidneys and to tone a depleted urinary tract. In place of uva ursi for vaginal and uterine weakness, leucorrhea and spermatorrhea. For all other urinary or kidney disorders, particularly when associated with scanty urine containing blood or purulent discharge.

Regulars, generally: for urinary tract infections and urinary calculi; similar to uva ursi (Penegelly & Bennett, 2011).

Modern Clinical Uses

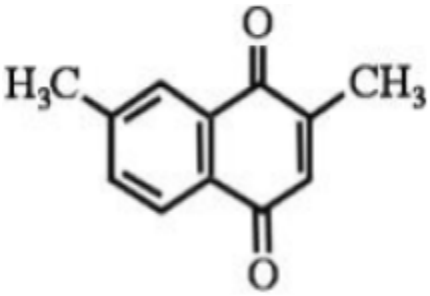
Genitourinary infections: Pipsissewa is used for its antibacterial and astringent properties for urinary inflammation such as cystitis, prostatitis, urethritis, and dysuria. Thomas Easley uses it for the aforementioned conditions, and considers it similar to uva ursi, but notes that Pipsissewa has less tannins so is easier on the kidneys (Easley, 2016). Mills and Bone credit *C. umbellata*'s actions on urinary infections to its arbutin content, which is a glycoside also found in bearberry (Bone & Mills, 2013, p. 266).

Betzy Bancroft uses it to resolve chronic, low-grade urinary infections, to improve circulation to the pelvis, to drain damp urinary conditions, and to address chronic relaxation of the bladder (Bancroft, 2019) . Maeve Grieve notes that *C. umbellata* is diuretic and tonic, and uses for gonorrhea, "catarrh of the bladder", and cites its ability to clear lithic acid build-up from the bladder (Grieve, 1971, p.

639). Where generative organs are concerned, *C. umbellata* can be used to address endometriosis, chlamydia, gonorrhea, benign prostate hyperplasia, and post-STI infection as a short-term tonic (Bancroft, 2019). Thomas Easley uses it for chronic low grade infections of the genitourinary tract (Easley, 2016).

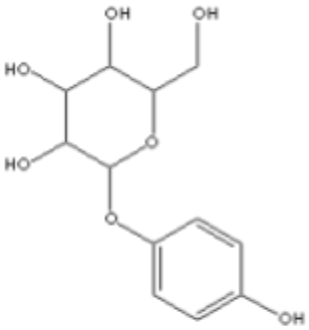
Key Constituents

Naphthoquinones, including chimaphilin; hydroquinones, including arbutin; polyphenols, including epicatechin gallate, kaempferol, hyperoside; methyl salicylate; triterpenes, including taraxasterol and ursolic acid (Bancroft, 2019); gums; resins; starch; pectic acid; extractive fatty matter; chlorophyll tannic acid; sugar; potassa; lime; iron; magenesia; sulfuric phosphorus; silicic acids (Grieve, 1971, p. 639).



Chimaphilin molecule

Phytochemical analysis of *C. umbellata* is recorded as long ago as 1860, when the neutral crystalline substance named chimaphilin was isolated. Chimaphilin is found in other species of the Pyloraceae families, and the chlorinated derivative chlorochimaphilin is found in *Moneses uniflora*, a Canadian species of the Pyloraceae.



Arbutin molecule

C. umbellata also includes alkylated benzo hydroquinones, including the antimicrobial toluquinol and the glycoside renifolin. Simple phenolic compounds, including methyl salicylate and salicylic acid methyl ester give the leaves a slight wintergreen-like odor when rubbed. Phenolic glycosides arbutin and isohomoarbutin, widely distributed in the Ericaceae and Pyloraceae families, also occur in *C. umbellata*. *C. umbellata* leaves contain (4-5%) tannins, including hydrolysable and condensed tannins such as epicatechin gallate. Leaves and flowers are reportedly rich in flavonoids, including quercetin, hyperoside, kaempferol and avicularin (Penegelly & Bennett, 2011).

Pharmacology

Antimicrobial, antifungal, antiseptic: Arbutin and chimaphillan are antimicrobial and have an antiseptic effect on the urinary system (Bancroft, 2019; Penegelly & Bennett, 2011)) because they are metabolized in the human body to yield hydroquinone, an antiseptic to the urinary system (Penegelly & Bennett, 2011). A 1967 student on a 70% ethanol extract of *C. umbellata* inhibited the growth of S. aureus, E. coli, C. albicans and Trichophyton mentagrophytes in vitro. A later study on chimaphilin from *Moneses uniflora* demonstrated potent inhibitory activity against S. aureus, Bacillus subtilis and C. albicans but with no significant effects on Mycobacterium species. In a survey of potential antifungal herbs used by indigenous people of Eastern Canada, *C. umbellata* was clearly the most potent of the 26 species tested. In this study, Pipsissewa inhibited the growth of six

species of human pathogenic fungi analyzed. A 2006 study later reported that the mechanism for this action is due to chimapphalin's ability to interfere with cell wall, mitochondrial, transcription and other cellular functions (Penegelly & Bennett, 2011).

Antioxidant, anti-inflammatory: Polyphenols are antioxidant and anti-inflammatory (Bancroft, 2019). Methyl salicylate is a phenolic compound whose volatile oils give Pipsissewa its wintergreen odor when leaves are fresh. Methyl salicylates may play a role in Pipsissewa's anti-inflammatory properties as well (Penegelly & Bennett, 2011). Triterpenes taraxasterol and ursolic acid also contribute to Pipsissewa's anti-inflammatory effects. Ursolic acid's anti-inflammatory activity may also contribute to its role in cancer prevention and as hepatoprotection (Bancroft, 2019). A 2007 study posits that *C. umbellata* is a potent inhibitor of oxygen radicals generated in the xanthine-xanthine oxidase system, and hydroxyl radicals produced in the Fenton-type reaction system (Oka,& Tachibana, et al., 2007). A 2008 study looked at chimaphilin's antioxidant properties and suggested this as a factor in wound healing (Galván,, 2008).

Potential Uses Extrapolated from Pharmacology

Breast/Chest cancer: A 2014 study on chimaphilin extracted from *Passiflora incarnata* (Passionflower) suggests its role in inducing apoptosis in breast/chest cancer cells. The study investigated the anticancer activity and underlying mechanisms of chimaphilin toward human breast cancer MCF-7 cells, and found that chimaphilin could inhibit the viability of MCF-7 cells in a concentration-dependent manner. Further, chimaphilin drastically induced apoptosis, triggered significant generation of reactive oxygen species (ROS), disrupted mitochondrial membrane potential. The researchers thus concluded that chimaphilin induced apoptosis in human breast cancer MCF-7 cells via a ROS-mediated mitochondrial pathway. Though the study was conducted using chimaphilin from *P. incarnata*, chimaphilin is a constituent in *C. umbellata* as well, thus suggesting its potential in the treatment of breast and chest cancers (Ma et al., 2014 through cell apoptosis.

Bone cancer: Similarly, there was research in 2015 on chimaphilin's role in inhibiting osteosarcoma cell invasion and metastasis through insulin-like growth factor-I receptor signaling (Daqian et al., 2015). A 2018 study also looked at chimaphilin's role in inhibiting osteosarcoma proliferation— by suppressing the TGF-β 1-induced epithelial-to-mesenchymal transition markers via PI3K/Akt, ERK1/2, and Smad signaling pathways. The authors concluded is an effective inhibitor of the metastatic potential of certain bone cancer cells— in this case U2OS cells— through suppression of TGF-β 1-induced epithelial-to-mesenchymal transition (Dong, 2015).

Mitochondrial disease: A 2016 study analyzed the naphthoquinones chimaphilin and 3-chloro-chimaphilin as potential aids in common and rare diseases that involve mitochondrial dysfunction, namely deficiency of mitochondrial complex I which leads to lesions to the oxidative phosphorylation system (OXPHOS). Treating complex 1 deficiency is often pharmaceutically addressed by "rescuing" OXPHOS activity by engaging complex I-independent pathways of entry, often referred to as "complex I bypass." The researchers hypothesize that *C. umbellata*'s clinical power could be due to its impact on mitochondrial function (Vafai et al. 2016). It could also be posited that *C. umbellata* could play in a role in primary mitochondrial disease as well as conditions

that have a secondary effect on mitochondrial function, such as Alzheimer's disease, muscular dystrophy, Lou Gehrig's disease, diabetes and cancer.

Clinical Trials

Bone mineral loss: A 2015 study titled "A new naphthalene glycoside from *Chimaphila umbellata* inhibits the RANKL-stimulated osteoclast differentiation" isolated a naphthalene glycoside from the leaves of *C. umbellata* and studied its effects on bone mineral loss. The study found that the glycoside--chemically structured as 2,7-dimethyl-1,4-dihydroxynaphthalene-1-O-β-D-glucopyranoside (DMDHNG)-- significantly inhibited the receptor activator of nuclear factor-κB ligand (RANKL)-induced tartrate-resistant acid phosphatase (TRAP) activity and the formation of multinucleated osteoclasts in a dose-dependent manner. Further, the glycoside inhibited the RANKL-induced mRNA expression of osteoclast-associated genes that encode TRAP, cathepsin K, and another transcription factor-nuclear factor of activated T-cells c1. The scientists conducting the study assert that *C. umbellata* demonstrates therapeutic power in slowing bone mineral loss by inhibiting osteoclast differentiation (Shin et al., 2015).

Skin conditions, including dandruff and tinea versicolor: A study from 1988 titled "The sensitizing capacity of chimaphilin, a naturally-occurring quinone" discusses chimaphilin--a yellow naphthoquinone which occurs in various *Chimaphila* species and is a major constituent in *C. umbellata* and *C. maculata*. The research builds from traditional use of *C. umbellata* as a dermatological aid. The study concludes that chimaphilin is a moderate contact sensitizer, but does not fully account for its ability to remedy skin irritation (Haussen, 1988).

Twenty years later, a 2008 study titled "Antifungal and antioxidant activities of the phytomedicine pipsissewa, *Chimaphila umbellata*" picked up this paradox. The study analyzed the antifungal and antioxidant activity of constituents of Pipsissewa as they relate to skin conditions. The studied tested the naphthoquinone chimaphilin with Saccharomyces cerevisiae (Brewer's Yeast) and the dandruff-associated fungus Malassezia globosa and Malassezia restricta. Researchers hypothesize that *C. umbellata* is able to interrupt fungal cell wall biogenesis and transcription. The study also identified antioxidant activity of *C. umbellata* componounds, and researchers suggest its use for wound and skin irritation healing for this reason.

Benign prostatic hyperplasia: A 2008 study compared the usefulness of various commercial products containing extracts of *C. umbellata* to ascertain their usefulness as part of therapeutic protocol for addressing benign prostate hyperplasia (BPH). The first product compared was Eviprostat tablet, a commercially available naturopathic tablet containing *Chimaphila* extract, *Populus tremula* extract, *Pulsatilla pratensis* extract, *Equisetum arvense* extract, sodium taurocholate, and wheat germ oil as active ingredients. The second product was EVI-F tablet, a new formulation of Eviprostat containing two times more active ingredients (*Chimaphila umbellata* extract, *Populus tremula* extract, *Pulsatilla pratensis* extract, *Equisetum arvense* extract and purified wheat germ oil) and thus designed to reduce the number of tablets per dose by half. In this study, patients with BPH were randomly assigned to either Eviprostat group (6 tabs/day) or EVI-F group (3 tabs/day). The clinical efficacy of these two drugs were evaluated by the International Prostate Symptom Score (IPSS) and QOL score at the end of the treatment period, and their safety was evaluated by the incidence of side effects. Results from this study show that the change in the IPSS

total score and QOL score were comparable to the previously reported data for other treatment agents for BPH, and these indices showed gradual improvement with the treatment period. Both treatments were well tolerated by participants. Thus, the researchers affirmed the usefulness of the monotherapy with EVI-F tablet or Eviprostat tablet , as both treatments reduced inflammation and nocturia in those with BPH, which improved their quality of life (Tamak et al., 2008) Given that pipsissewa comprises a significant portion of Eviprostat and EVI-F, an extrapolation could be made that pipsissewa alone would have a therapeutic effect on BPH as well.

Safety Issues

Pipsissewa is generally regarded as safe for most medicinal use, however, there are a few instances in which extra caution and care is necessary. During pregnancy, *C. umbellata* is generally safe and has historically been used without contraindication, though users should be advised of the lack of clinical research on fetal development, if there is a cause for concern. Additionally, care should be taken with cardiac glycoside medications because Pipsissewa is a diuretic that could potentially increase potassium excretion and lead to the possibility of arrhythmias in rare instances. Finally, for some, the leaves may induce redness or blisters when applied topically to the skin, though sensitization varies widely (Bancroft, 2019).

Preparation & Dosage

Tincture:

Betzy Bancroft: fresh leaves 1:2, 35% EtOH, 10% glycerin; 1-3 ml up to four times per day (Bancroft, 2019).

Thomas Easley: fresh leaves 1:2, 95% EtOH; dried leaves 1:5, 50% EtOH; 1-2 ml three times per day (Easley, 2016, p. 285)

Tea:

Betzy Bancroft: As an infusion: 1-2 tsp/cup, 2-4 oz per day or as a small part of a formula (Bancroft, 2019).

Thomas Easley: As an infusion: 4-8 oz, 1-4 times per day (Easley, 2016, p. 285).

Maeve Grieve: As a decoction: 1 - 4 oz, up to three times per day (Grieve, 1971, p. 639). .

Syrup:

Maeve Grieve: macerate 4 oz finely bruised leaves in 8 oz of water, let it stand for 36 hours then strain til 1 pint of the fluid is obtained; evaporate to ½ pint, add ¾ pound of sugar. Dose 1-2 tablespoons (Grieve, 1971, p. 639).

Topical applications:

Eclectic: fresh leaf poultice

Betzy Bancroft: fomentation of the tea; in a sitz bath (Bancroft, 2019).

Combinations and Similar Herbs

Pipsissewa is similar to uva ursi and buchu in that it is an aromatic diuretic with an affinity for the genitourinary system. Betzy Bancroft combines pipsissewa with celery seed for gout, and with cleavers and coptis for epididymitis. She recommends it in combination with any berberine-containing herb (Oregon Grape root, goldenseal, barberry, etc) for cystitis. She uses it with goldenrod with urinary issues more generally, as an astringent and a tonic. Pipsissewa can also be used to add flavor and digestive bitter compounds to root beers (Bancroft, 2019). .

Miscellaneous

In *The Modern Herbal*, Maeve Grieve expounds on the origin of the botanical nomenclature for *C. umbellata*. "Chimaphila" is derived from two Greek words meaning "winter and "to love" (Grieve, 1971, p. 639).

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