BUCHU

Agathosma betulina (P.J.Bergius) Pillans

Family

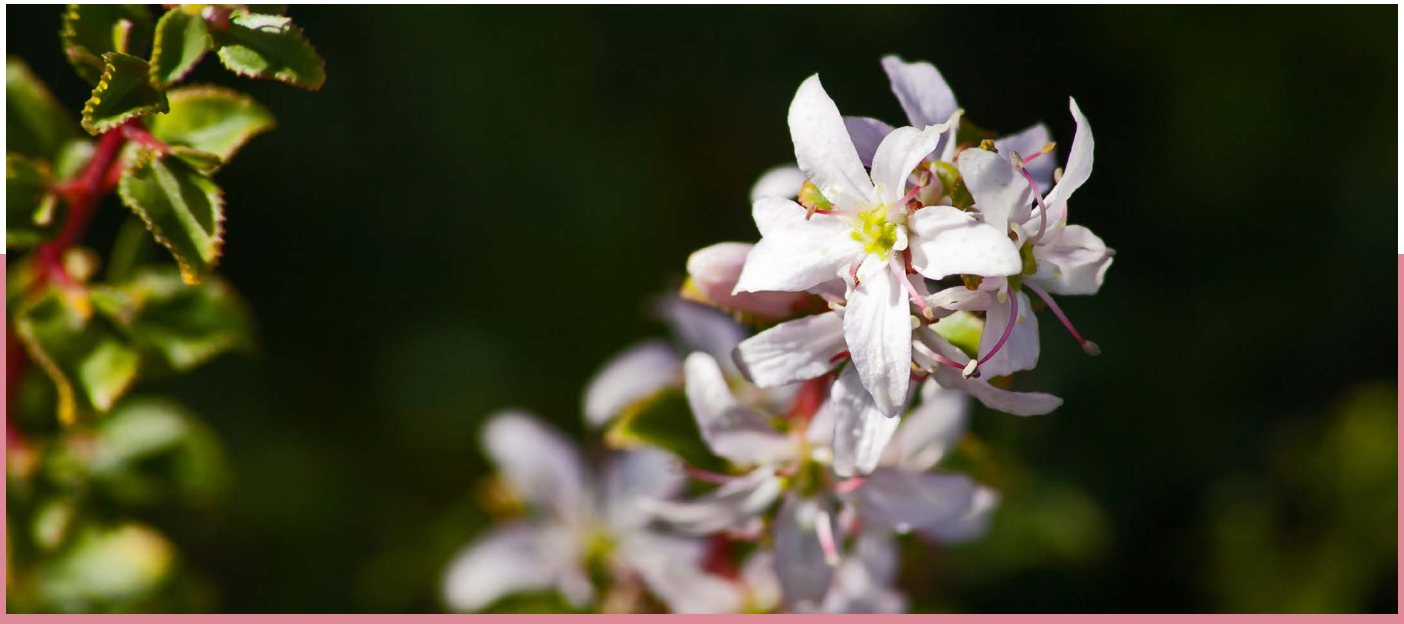
Rutaceae, commonly known as the rue or citrus family. Agathosma is a genus of 150 species of flowering plants in this family indigenous to South Africa.[1]

Parts Used

Leaf

Description

Buchu is an evergreen, gland-dotted, fragrant shrub that grows up to two metres in height and is naturally distributed in the Western Cape Province of South Africa. The two *Agathosma* species in commerce are *A. betulina* and *A. crenulata*. Their common name buchu, however, was historically applied to multiple aromatic species of this and other genera. *A. betulina* is sometimes called "round or short leaf buchu" while *A. crenulata* may be known as "oval or long leaf buchu." The small, characteristically rounded leaves of *A. betulina*, have tips which curve backwards. The star shaped flowers are white or purplish pink, with five petals. The fruit is a five-parted capsule which splits open to release the seeds. The plants are extremely aromatic, filling the surrounding area with their scent. The aroma is reminiscent of blackcurrants, though some people detect a mixture of rosemary and peppermint. Evidence has surfaced to suggest that buchu has a particular synergistic relationship with a common soil yeast, *Cryptococcus laurentii*, which allows it to grow in the low nutrient soil it is found in. It has been suggested that this relationship plays a strong role in the medicinal constituent concentrations in the harvested plants. More research is needed.[2,3]



Sustainability

A buchu plant, if properly handled, has a lifespan of up to 100 years. In the wild, the plant is only harvested every second or third year to ensure that there is enough time to regrow and seed. Currently the Agricultural Research Council of South Africa, in collaboration with local farmers, has projects in place to monitor harvesting and ensure the protection of pure genetic strains of plants from which to propagate.[4]

Traditional and Empirical Use

Traditionally buchu has been highly prized by the Khoisan (indigenous people of the western region of South Africa) for medicinal and spiritual purposes including for dance rituals, anointment, beautification and as perfume. It has remained one of the most popular herbal medicines in South Africa. The traditional use of buchu encompasses the treatment of kidney and urinary tract infections, colds, stomach ailments, rheumatism, gout and fever. Externally it was applied as an antiseptic wash to infected wounds and as a compress to relieve swelling, bruising and sprains. In traditional practice *A. betulina* is most commonly taken orally in the form of an aqueous infusion, sometimes sweetened with brown sugar, or as tincture in brandy. Other dosage forms include a vinegar infusion for external application as an antiseptic wash or embrocation.[5]

When early Dutch settlers first came to the Cape in South Africa, they were struck by the pervasive and intoxicating smell of the buchu bush. Initially noted by the early settlers, knowledge and use of buchu spread to Europe and later to the United States. It is even said that a shipment of eight bales of buchu leaves were catalogued as on board the doomed Titanic. Buchu has been in compendiums since 1826 for its diuretic effects and use in the treatment of genitourinary tract infections, however, became obsolete in the 20th century due to the lack of scientific evidence for its efficacy and the advent of antibiotics and synthetic diuretics. According to the Eclectics buchu is an aromatic stimulant and tonic used to treat poor appetite, flatulence and nausea.[6]

Agathosma means 'good fragrance' and in manufacturing the essential oil from buchu is used to give a fruit flavour (often blackcurrant) to foods. It is also used as a fragrance in perfumes and colognes. The word *betulina* (Latin) means "birch-like", a word used in reference to the serrated birch-like appearance of the leaves.[7]

Constituents

More than 120 compounds have been identified in buchu including volatile oils (diospheol, menthone, isomethone, limonene, pulegone) and flavonoids (rutin, diosmetin, diosmin, hesperidin, quercetin and derivatives), B vitamins, tannins, resin and mucilage. Buchu is said to be the only plant in the world that genetically produces diosphenol, which is responsible for the characteristic blackcurrant scent and flavour of the plant.[8,9,10]

Actions

Diuretic, antioxidant, anti-inflammatory, analgesic, antibacterial, mild laxative, carminative, diaphoretic.

Pharmacological Activity

The research includes mostly laboratory (*in vitro*) and animal (*in vivo*) studies on buchu, and its bioactive compounds, which demonstrate a variety of effects including diuretic, antioxidant, anti-inflammatory, analgesic and antibacterial activity. These activities may be attributable to the irritant nature of the volatile oil and the flavonoid components. There is a lack of available human studies to justify the traditional indications. Rigorous randomised controlled clinical trials assessing the effects of buchu are required given that preclinical trials cannot be extrapolated to human use.

Reproductive System Activity

The benefits of buchu may be applied to treat ailments of the reproductive system. Buchu is used as a urinary tract antiseptic and as an anti-inflammatory agent thereby reducing the inflammation seen in urinary tract infections (UTIs) and treating infections of the urethra and prostate. Buchu has many direct and indirect effects on the reproductive system via its ability to act as a diuretic, an antioxidant, antimicrobial and an anti-inflammatory agent. Its uses in inflammation, oxidative stress and in the removal of pathogenic species from the body contribute to its effectiveness in treating disorders such as benign

prostatic hyperplasia (BPH) and UTIs. Its antioxidant properties may be used to prevent infertility through its potential to help keep the free radicals, reactive oxygen species (ROS) and reactive nitrogen species (RNS), at physiological levels allowing them to regulate sperm function without allowing pathological levels to be obtained, which can have detrimental effects on the ability to reproduce.[11]

Indications

- Urinary tract infections (specifically acidic urine) including cystitis, urethritis, prostatitis and pyelonephritis
- Benign prostatic hyperplasia
- Hypertension
- Fever, cough, common cold
- Dyspepsia, ulcers, irritable bowel syndrome
- Gout
- Sexually transmitted diseases
- Topically as an insect repellent, deodorant, to treat or prevent bacterial and fungal skin infections.

Energetics

Bitter, pungent, warm, dry[12]

Use in Pregnancy

Caution is advised. Buchu is generally regarded as having a high level of safety but is often contraindicated during pregnancy. This is mainly for the adulterant *A. crenulata* as the contraindicated chemical pulegone (in the essential oil) is contained in high amounts in this species. *A. betulina*, however, is considered safe during pregancy.[13]

Contraindications and Cautions

While buchu was used traditionally for kidney infections caution is advised during use with a kidney infection as the volatile oil may irritate the kidney.

Buchu may have antiplatelet effects therefore, theoretically, buchu may increase the risk of bleeding when used by patients with bleeding disorders. Tell patients to discontinue buchu at least two weeks before elective surgical procedures.

May cause mild gastrointestinal discomfort if taken on an empty stomach.

Caution advised during use with a kidney infection as the volatile oil may irritate the kidney.[14]

Drug Interactions

Theoretically, buchu may have antiplatelet effects which may enhance the effects of anticoagulant or antiplatelet drugs and increase the risk of bleeding in some patients. Caution is advised with anticoagulant or antiplatelet drugs including aspirin, clopidogrel (Plavix), dalteparin (Fragmin), enoxaparin (Lovenox), heparin, ticlopidine (Ticlid), warfarin (Coumadin) and others.

Buchu has not been subjected to prospective controlled trials of safety and efficacy but is widely described as being well tolerated and without significant side effects. However, buchu contains pulegone, a known hepatotoxin. There is some concern that buchu may adversely affect the liver, especially when the leaf is used in large doses or the oil is ingested. The concentration of pulegone is higher in leaves from A. crenulata than in those of A. betulina.[15]

Theoretically, concomitant use with hepatotoxic drugs might increase the risk of liver damage. Caution is advised with these drugs which include acarbose (Precose, Prandase), amiodarone (Cordarone), atorvastatin (Lipitor), azathioprine (Imuran), carbamazepine (Tegretol), cerivastatin (Baycol), diclofenac (Voltaren), felbamate (Felbatol), fenofibrate (Tricor), fluvastatin (Lescol), gemfibrozil (Lopid), isoniazid, itraconazole, (Sporanox), ketoconazole (Nizoral), leflunomide (Arava), lovastatin (Mevacor), methotrexate (Rheumatrex), nevirapine (Viramune), niacin, nitrofurantoin (Macrodantin), pioglitazone (Actos), pravastatin (Pravachol), pyrazinamide, rifampin (Rifadin), ritonavir (Norvir), rosiglitazone (Avandia), simvastatin (Zocor), tacrine (Cognex), tamoxifen, terbinafine (Lamisil), valproic acid, and zileuton (Zyflo).

Buchu is thought to have diuretic properties.

Theoretically, buchu might reduce excretion and increase levels of lithium. Caution is advised and the dose of lithium might need to be decreased.[16]

Administration and Dosage

Liquid Extract:	1:2
Alcohol:	60%
Weekly Dosage:[17]	15 to 30mL

References

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