



Medicinal plants cultivated by Hebron Estate for manufacturing of complementary medicinal products.

BUCHU

Agathosma betulina

Buchu is a low growing shrub native to the Cape region of South Africa. The indigenous people of South Africa used Buchu leaves mainly for its medicinal properties. The medicinal use of this plant is part of the cultural heritage of the Khoi-San, who chew the leaves to relieve stomach problems and mix the leaves with sheep fat as an ointment to treat wounds and for perfumery application. In the 17th century, when Dutch colonists settled in South Africa they



learned about the herb from the natives and adopted Buchu as anecdote for various ailments. Historically Buchu was the first export product of the Cape of Good Hope to Europe, where it was used in various medicinal treatments including urinary tract infection, inflammation of the prostate, diuretic in stomach ailments, rheumatism, fever, kidney stones, cholera and muscle aches. Today, the essential oil of Buchu is well established as a building block in various flavours used in the food and beverage industries. These flavours include black currant, grapefruit, passion fruit as well as a number of berry-related flavours. The oil is listed by the Council of Europe as a natural source of food flavouring.

Buchu leaves contain the flavanoids rutin, diosmin, hesperidin, quercitin and derivatives thereof. Approximately 1 % of the leaf consists of essential oil, of which the important constituents are menthone, isomenthone, diosphenol, 8-mercapto-p-menthan-3-one and 8-asetylethio-p-menthan-3-one. The latter are especially important in flavour applications.

Applications for the essential oil of buchu are mainly in the flavour and fragrance industry. The extract of Buchu is used for the treatment of renal disorders, colds, and flu and kidney infections. The plant has been proven to have antiseptic, anti-bacterial, anti-inflammatory and cleansing properties. It also promotes even skin tone and reduces skin oiliness while moisturizing and protecting skin.

ROOIBOS

Aspalathus linearis

The Rooibos herb grows on the slopes of the Cedarberg mountains in the Western Cape, South Africa. The tea remained virtually unknown and was for centuries known only to the Khoisan, a tribe of South African Bushmen. It was used frequently by these people as an herbal remedy for a wide range of ailments. The secret of this delicious herb nearly vanished into oblivion due to the environment and landscape, as the isolated tribe dwindled away and eventually disappeared. After harvesting, the tea is finely chopped, bruised and left to ferment and dry in the African sun. During this phase the tea changes from a vivid green to a deep mahogany red. Since Rooibos is naturally caffeine free, it can be consumed at any time without experiencing caffeine's stimulant side effects. This is important when considering the benefits to pregnant women, children and caffeine-sensitive drinkers.



Rooibos is characterized by a range of flavonoid glycosides, e.g. orientin, isoorientin, quercetin, as well as polyphenolic antioxidants like aspalathin and nothofagin. Aspalathin is the major and unique antioxidant found only in Rooibos. The phenolic acids contain anti-inflammatory and anti-allergic properties and play a positive role in destroying the scavenging effects of free radicals present in the Rooibos contains various unique anti-oxidants and is regarded as a general health drink, anti-inflammatory agent as well as anti-ageing tonic. The tea exhibits antispasmodic properties and is therefore often used as milk substitutes for colic babies. The cardiovascular health properties of Rooibos are well documented.

AFRICAN POTATO

Hypoxis hemerocallidea

This root vegetable of African wild potato has a legendary reputation for its anti-inflammatory and anti-mutagenic properties and is found widely spread in the grassland areas of South Africa. Based on evidence that the sterols and sterolins in Hypoxis root have the potential to enhance immunity, extracts of the root is often used in immune boosting applications [1]. The plant tuber contains rooperol, hypoxide, phytosterols, sterolins, and enzymes proven effective in easing conditions such as psoriasis, eczema and minor skin irritations. Rooperol proves to have several biological activities, amongst which is anti-mutagenic and cytotoxic action to cancer cells. Evidence from clinical trials suggests a degree of efficacy in the treatment of benign prostatic hyperplasia[2].



Since the plant sterols found in the tuber increase the body's natural resistance to disease, the extract of the plant is also used in the treatment of diseases like rheumatoid arthritis, diabetes and pulmonary tuberculosis. In addition the extract of Hypoxis was found to be of value to endurance athletes in the treatment of bacterial and respiratory infections resulting from a stringent training regime.

The plant root contains rooperol, hypoxide as well as a range of phytosterols and sterolins, typical to the species. While these components are regarded as natural immune boosting substances, the extract from the root has been proven to exhibit anti-inflammatory and anti-diabetic properties. The extract has also been shown to prevent the premature degeneration of body cells by enhancing cell activity.

SUTHERLANDIA

Sutherlandia frutescence

Originating in Southern Africa, Sutherlandia is a perennial shrub with bright red flowers and inflated bladderly pods and are commonly cultivated as garden ornamentals. Traditionally no distinction is made between the use of *Sutherlandia frutescens* and the closely related *S. microphylla* for medicinal purposes. The plant is regarded as amongst the most multi-purpose and useful of the medicinal plants in Southern Africa. Also known as Cancerbush, it has a long history of traditional use and assists the body in mobilizing its own resources to cope with diverse physical, mental and chemical stresses. It is a bitter tonic and adaptogen that has been used against numerous ailments including stress, anxiety and the treatment and prevention of cancer. Extracts are used topically in the treatment of burns, wounds and inflammatory skin conditions.



The plant has the following active components (with associated health benefits):

- L-Canavanine: A potent non-protein amino acid with anti-viral, anti-bacterial, anti-fungal and anti-cancer activity.
- Arginine: Enhances the immune function, stimulates the manufacturing of T-cells and aids in detoxification.
- Pinitol: Stimulates glucose transport into isolated muscle cells which is necessary for muscle fuel, growth and recovery.
- GABA (gamma-amino butyric acid): A safe nutritional relaxant and anxiolytic.
- Asparagine: The component is known to counter fatigue and depression and increases the production of lymphocytes.

PELARGONIUM SIDOIDES

Pelargonium sidoides

Pelargonium sidoides is a South African indigenous plant that has been used for centuries by the Zulu as a traditional remedy for the treatment of the upper respiratory tract ailments such as coughs, fever, bronchitis, pneumonia and tuberculosis. Infusions of the plant roots were also used for gastrointestinal complaints such as diarrhea, dysentery, colic, liver problems and menstruation complaints. In the 19th century the South



African drug "Umckal abo" (Words in the Zulu language that express an illness of the respiratory organs.) became known in Europe as effective treatment for respiratory related conditions. Today the extract of the roots of *Pelargonium sidoides* are ingredients of the well-known German medicinal remedy called "Umckaloabo". In South Africa various brands of cough medicine has been developed by Afriplex using an extract that is standardized on the active component umckalin.

The main ingredients are coumarines, scopoletin, umckalin and gallic acid derivatives. The standardized powder extract is processed and spray dried under low-temperature conditions in order to ensure the integrity of the final product.

Wild Dagga

Leonotis leonurus

The plant, indigenous to South Africa and the Western Cape, is also known as Lion's Tail and Wild Dagga. It is known for its medicinal and psychoactive properties, the main active component being leonurine. The shrub grows 1 to 2 m tall with medium-dark green elongated leaves that exhibits and strong aroma when crushed. The plant has tubular orange flowers that encircle the square stems. They rise above the foliage mass during the summer season, with flowering continuing into winter in warmer climates. The flowers' mainly orange to orange-red colour and tubular shape are indicative of its co-evolution with African sunbirds, which have curved bills suited to feeding from tubular flowers.



Leonotis leonurus has long been used in traditional African herbal medicine for fevers, headaches, dysentery, flu, chest infections, epilepsy, constipation, delayed menstruation, intestinal worms, spider bites, scorpion stings, hypertension and snakebites. Externally, it is often used for hemorrhoids, eczema, skin rashes and boils.

One experimental animal study suggests that "the aqueous leaf extract of *Leonotis leonurus* possesses anti-inflammatory, and hypoglycemic properties; thus lending pharmacological credence to folk usage of the herb in the management and/or control of painful, arthritic, and other inflammatory conditions, as well as for adult-onset, type-2 diabetes mellitus in some communities of South Africa."

The dried leaves and flowers have a mild calming effect when smoked. In some users, the effects have been noted to be similar to the cannabinoid THC found in Cannabis, except that it has a much less potent high. The picked and dried leaves are also commonly brewed as a minty tea.

Bulbinella

Bulbine frutescens

Bulbine frutescens occurs widespread throughout parts of Northern, Western and Eastern Cape. The word "Bulbine" comes from the Latin word *bulbus* meaning an onion or bulb. This is misleading, as the plants do not have a bulbous base. It is a fast growing, branched, succulent perennial with fleshy, linear green leaves in opposite rows and clasping the stems at the base. It forms spreading clumps with greyish stems often bearing adventitious



roots. The small 6-petaled star shaped flowers are carried on an upright, spreading raceme during spring. The petals are either yellow or sometimes orange, which combines attractively with the fluffy yellow stamens to give a bi-coloured look. The fruit is a small, rounded capsule and contains black seeds which are dispersed by wind. *Bulbine frutescens* is often used in landscaping where a drought-resistant, tough groundcover is required.

The fresh leaf produces a jelly-like juice that is wonderful for burns, rashes, blisters, insect bites, cracked lips, acne, cold sores, mouth ulcers and areas of cracked skin. This plant is ideal to grow and is a useful first-aid remedy for childrens' daily knocks and scrapes. The Rastafarians make an infusion of a few fresh leaves in a cup of boiling water. The strained drink is taken for coughs, colds and arthritis.

Olive Leaf

Olea europaea

Olive leaf is the leaf of the olive tree *Olea europaea*. While olive oil is well known for its flavour and health benefits, the leaf has been used medicinally in various times and places.



Olive leaf harbours antioxidant properties that help protect the body from the continuous activity of free radicals. Free radicals are highly reactive chemical substances that, when oxidized, can cause cellular damage if left unchecked. Some recent research on olive leaf extract has shown its antioxidants to be effective in treating some tumours and cancers such as liver, prostate, colon, skin and breast cancers. Formal research on the latter is on-going. In addition, researchers have found that olive leaf dilates isolated rat aorta, leading to the possibility of using the extract in the control of blood pressure. However, subsequent tests showed that the blood pressure lowering effects in humans was not statistically significant.

The primary active compounds in unprocessed olive leaf are believed to be the antioxidants oleuropein and hydroxytyrosol, as well as several other polyphenols and flavonoids, including oleocanthal. Olive leaf and olive leaf extracts are currently marketed as anti-aging, immune-modulating and antibiotic agents. Bioassays of the extract of olive leaf support its anti-bacterial, antifungal, and anti-inflammatory effects at a laboratory level. A liquid extract made directly from fresh olive leaves recently gained international attention when it was shown to have an antioxidant capacity almost double green tea extract and 400% higher than vitamin C.

Echinacea

Echinacea purpurea

Echinacea purpurea, also known as purple coneflower, is a species of flowering plant in the genus *Echinacea* of the family Asteraceae. The plant, native to North America, boasts cone-shaped flowering heads that are usually, but not always, purple in the wild. Depending on the climate, it blooms throughout spring and summer. Its individual flowers (florets) within the flower head are hermaphroditic, having both male and female organs on each flower that is pollinated by butterflies and bees.



Echinacea angustifolia was widely used by the North American Plains Indians for its general medicinal qualities. It was one of the basic antimicrobial herbs of eclectic medicine from the mid 19th century through the early 20th century, and its use was documented for snakebite, anthrax, and for relief of pain. In the 1930s echinacea became popular in both Europe and America as an herbal medicine. Native Americans learned of *E. angustifolia* by observing elk seeking out the plants and consuming them when sick or wounded, and identified those plants as elk root.

Echinacea is popularly believed to be an immunostimulator, stimulating the body's non-specific immune system and warding off infections and also being used as a laxative. Multiple scientific reviews and meta-analyses have evaluated the published peer reviewed literature on the immunological effects of Echinacea. A 2007 study by the University of Connecticut combined findings from 14 previously reported trials examining Echinacea and concluded that Echinacea can cut the chances of catching a cold by more than half, and shorten the duration of a cold. An earlier University of Maryland review based on 13 European studies concluded that echinacea, when taken at first sign of a cold, reduced cold symptoms or shortened their duration.

Elderberry

Sambucus nigra

Sambucus nigra is a species complex of flowering plants in the family Adoxaceae, native to most of Europe. Common names include elder, elderberry, and European elder. It is a deciduous shrub with hermaphrodite flowers that are borne in large corymbs in midsummer. The fruit is a glossy dark purple to black berry, produced in drooping clusters in late autumn and are an important food for many fruit-eating birds.



The berries are fit for human consumption and often used to produce jam, jelly and chutney. The flower heads are commonly used in infusions, producing a refreshing drink in Northern Europe and the Balkans. Commercially these are sold as elderflower cordial. In Europe, the flowers are made into a syrup or cordial which is diluted with water before drinking. The popularity of this traditional drink has recently encouraged some commercial soft drink producers to introduce elderflower-flavoured drinks (Fanta is one example).

This plant is traditionally used as a medicinal plant by many native peoples and herbalists alike. Leaves, flowers, fruits, and root extracts are used to treat bronchitis, cough, upper respiratory cold infections and fever. In a placebo-controlled, double-blind study, black elderberry (*Sambucus nigra*) was shown to be effective for treating Influenza B. The study was published in the Journal of Alternative Complementary Medicine.

Tel: +27 (0)22-914 5353 | Cell: +27 (0)83 226 8878 | Email: info@hebronestate.co.za

Web: www.hebronestate.co.za | PO Box 542 | Piketberg | 7320