

Australian eucalyptus oils

By Salvatore Battaglia



BOTANICAL NAMES

In this monograph we will explore a range of eucalyptus oils that are in the limited edition Perfect Potion Australian eucalyptus oil collection.

Lemon scented gum

Corymbia citriodora

Narrow leaf peppermint eucalyptus

Eucalyptus radiata

Lemon scented iron bark

Eucalyptus staigeriana

Northern mallee eucalyptus

Eucalyptus loxophleba
ssp. Lissophloia

Blue mallee eucalyptus

Eucalyptus polybractea

INTRODUCTION

The eucalyptus, otherwise just referred to as the gum tree, is a well-established feature of the Australian landscape. You may be surprised to know that there are close to 800 species of eucalyptus which are native to Australia. However, while there are so many species, less than 20 species have ever been commercially exploited for their essential oil.

In Australia, many of us have grown up with and are familiar with the revitalising scent of eucalyptus oil and products containing eucalyptus oil – whether it be eucalyptus-flavoured throat lozenges or chest rubs.

As a supplier of essential oils and an aromatherapist, I have always been meticulous in sourcing locally produced essential oils and ensuring that they are botanically pure (that means knowing the species of the plant from which the oil is extracted). There are many standards for the ‘ideal’ commercial or pharmaceutical grade eucalyptus oil. The ISO standard, for example, requires a minimum of 80-85%, 1,8-cineole. This is the major constituent which gives many eucalyptus oils that distinctive medicinal aroma. The 1,8-cineole rich eucalyptus oil is the most commonly available oil. Although some species of eucalyptus yield an oil with a high 1,8-cineole content, many do not. As a result, much of the commercially available eucalyptus oil is either blended or rectified (that means redistilled). In the rectification process many of the trace constituents that give eucalyptus oil its broad range of unique properties are lost.

In preparing the collection of limited edition Australian eucalyptus oils, I not only wanted to support Australian farmers and essential oil producers, I wanted to showcase the beautiful diversity of the amazing Eucalypt species and present a range of eucalyptus oils with diverse properties.

The chemistry of each of these oils is so unique and they each have a stunning aroma. What also makes these oils so special is that they have not undergone any subsequent rectification or redistillation.



USES

While the eucalyptus oils are often grouped according to their botanical species or chemotypes, Boland, Brophy & House group them into three main categories of end use. These are:¹

- *Medicinal oils* – of which 1,8-cineole is the most important constituent.
- *Industrial oils* – of which piperitone and α -phellandrene are the most important constituents. α -phellandrene rich eucalyptus oils are used for scenting inexpensive disinfectants and industrial liquid soaps while piperitone from *Eucalyptus dives* is used for the production of synthetic menthol.
- *Perfumery/flavouring oils* – The aldehyde rich oils that are a rich source of citral such as *E. citriodora* (now known as *Corymbia citriodora*) and *E. staigeriana*, lemon scented iron bark are the most important oils used in perfumery and flavouring industries.

All the eucalyptus oils from these three categories have fascinating and interesting therapeutic uses in aromatherapy. While the pharmaceutical concept of purity is often an oil that is rectified and rich in the so called 'active' constituent, in aromatherapy purity is defined by being able to identify the botanical name of the plant from which the essential oil is extracted and to identify its chemotype. This is to see if there is any chemical variability within the same species. This, as we will find out, often occurs with some eucalyptus species.

Many aromatherapists suggest that it is best to use the whole essential oil and that any rectification removes trace constituents that may be responsible for some of the oil's therapeutic properties. While the 1,8-cineole is well known for its decongestant and antitussive activity, some of the trace compounds that are removed in the rectification of the oil may contribute to eucalyptus oil's immunomodulant activity.

ORIGINS

All the eucalyptus plants are indigenous to Australia, where they make up about 75% of all Australian tree flora. However, large eucalyptus plantations have been established in other countries from Australian seeds.² As a result the major eucalyptus oil producing countries are now China, Spain, Portugal, South Africa and Chile. China is currently the world's largest producer of eucalyptus oil.²

Nowadays, most eucalyptus oil sold in Australia is produced from trees grown overseas.

The ability of some species of eucalypts to grow quickly and coppice readily has made them valuable where wood fuel is of great domestic importance. Eucalypts are known to produce the hardest, heaviest and most durable wood.²

The genus *Eucalyptus* was named by French botanist C L L'Héritier de Brutelle, from the Greek word *eu* (well) and *kalipto* (covered), referring to the cup-like structure which is thrown off as the flower expands.²

HISTORY

It was Baron Ferdinand von Mueller, the first government botanist of Victoria, in 1853, who convinced his friend Joseph Bosisto, a Melbourne pharmacist, of the virtues of eucalyptus oils and the potential for developing an indigenous industry.¹

In 1854, Bosisto built his first distillation plant on the banks of Dandenong Creek near Dandenong on the outskirts of Melbourne. He distilled eucalyptus oil from what was then known as *Eucalyptus amygdalina*, now known as *E. radiata*.¹

By the 1880s the eucalyptus oil industry had firmly established itself. Bosisto received financial backing from Melbourne businessmen Alfred Felton and Frederick Grimwade, and together they formed the Eucalyptus Mallee Company. Today this company still produces eucalyptus oil which is marketed under the name Bosisto's Brand Eucalyptus Oil.¹

Eucalyptus oil was in huge demand during World War I, as it was used to help control a meningitis outbreak and the influenza of 1919. However, by 1930 overseas eucalyptus plantations impacted Australian produced oil dramatically.¹

The eucalyptus oil industry in Australia reached its peak in 1947, when total production reached almost 1,000 tonnes, of which 70% was exported. Since then, the industry has declined. In 1989 the world eucalyptus oil market was about 2,000 to 3,000 tonnes per annum, of which about 5 to 10% was produced in Australia.

The 1,8-cineole rich eucalypts

Three of the oils in the limited edition eucalyptus collection are rich in 1,8-cineole, the main constituent often found in many eucalyptus oils.

- Narrow leaf peppermint eucalyptus - *Eucalyptus radiata*
- Northern mallee eucalyptus - *Eucalyptus loxophleba ssp. lissophloia*
- Blue mallee eucalyptus - *Eucalyptus polybractea*

While these three oils share similar properties, the unique chemical composition gives them a unique aroma profile and different therapeutic activities.

The **blue mallee eucalyptus** oil has the most typical eucalyptus aroma with over 92% 1,8-cineole. This makes it ideal in a vaporiser as a respiratory decongestant.

The **northern mallee eucalyptus** oil has 71% 1,8-cineole; however, the 6% camphor found in the oil gives this oil a sharp piercing medicinal aroma. While it would be ideal for colds and flu, I would suggest this oil be ideal for musculoskeletal aches and pains.

Narrow leaf peppermint eucalyptus oil only has 74% 1,8-cineole. While it is also beneficial as a respiratory decongestant, the *d*-limonene and α -terpineol found in this oil gives the oil a gentle pleasant almost soothing and calming scent. This is likely to make it a better choice in topical treatments. I also would recommend diffusing this oil for young children.

NARROW LEAF PEPPERMINT EUCALYPTUS

Botanical name

Eucalyptus radiata. It has also been referred to as *E. Australiana*.

Origin

This species is typically a small to medium-sized tree of relatively dry forests and woodlands.³

The narrow leaf peppermint eucalyptus oil found in Perfect Potion's limited edition Australian eucalyptus oils collection comes from the south coast of NSW.

Extraction method

Steam distillation

Description

Narrow leaf peppermint eucalyptus oil has a sweet, fresh and camphoraceous aroma. I love the unique scent of this eucalyptus oil. It has a lower percentage of 1,8-cineole which gives the oil a delicately balanced pleasant almost floral-like aroma.

Chemical composition

This is often considered the most important source of eucalyptus oil. There are up to six chemotypes of *E. radiata*. The two most common are the 1,8-cineole types and the second most common chemotype is the piperitone chemotype.¹

The narrow leaf peppermint eucalyptus oil in Perfect Potion's limited edition kit is a 1,8-cineole chemotype. However, unlike other 1,8-cineole rich eucalyptus oils it has a higher percentage of *d*-limonene and α -terpineol and less 1,8-cineole, giving this oil a sweet, gentle medicinal aroma.

The major constituents found Perfect Potion's narrow leaf peppermint eucalyptus oil are α -pinene (1.776%), sabinene (0.764%), β -pinene (0.465%), α -phellandrene (0.976%), *d*-limonene (4.667%), 1,8-cineole (71.34%), γ -terpinene (0.418%), terpin-4-ol (trace), α -terpineol (10.076%).

NORTHERN MALLEE EUCALYPTUS

Botanical name

Eucalyptus loxophleba ssp. lissophloia

Origin

It prefers soils that are loamy to sandy loams, but it will tolerate other soil conditions and is suitable for planting in areas of low rainfall and hot summers. It is also salt tolerant.²

The Northern mallee eucalyptus oil found in Perfect Potion's limited edition Australian eucalyptus oils collection comes from central South Australia.

Extraction method

Steam distillation

Description

Northern mallee eucalyptus oil has a pleasant, powerful, fresh camphoraceous aroma. Compared to the Blue mallee eucalyptus it has a slightly more piercing stronger aroma, perhaps due to the camphor.

Key constituents

The major constituents found Perfect Potion's Northern mallee eucalyptus oil are α -pinene (5.253%), *p*-cymene (1.04%), *d*-limonene (6.852%), 1,8-cineole (71.549%), camphor (6.296%), α -terpineol (0.372%).

BLUE MALLEE EUCALYPTUS

Botanical name

Eucalyptus polybractea. It is also known as *E. fruticetorium*.

Botany

Eucalyptus polybractea is an evergreen multi-stemmed shrub, up to 8m high.^{1,2}

History

E. polybractea is the primary source of the cineole-rich eucalyptus oils in Australia. It is the major species under cultivation for commercial production of eucalyptus oil in Australia. It is reported to have double the oil yield and much higher cineole content than *E. globulus*. The species is ideally suited to mechanical harvesting as it coppices freely after repeated cuttings.^{1,2}

Australia is in fact the only country which utilises *E. polybractea* for oil production.²

Weiss states that the profitable life of a *E. polybractea* plantation could be over 100 years. Natural stands in Australia have been harvested continuously for over 70 years with no deterioration.²

Origin

E. polybractea is a mallee, naturally adapted to relatively low rainfall and infertile soils on plains and low hills inland from the Great Dividing Range in Victoria and New South Wales.³

Blue Mallee is typically found in western New South Wales and Victoria. It is a mallee found in gently undulating country along with a number of other mallee. It prefers soil that is red-brown or sandy loam soil.¹

The origin of Perfect Potion's blue mallee oil in the limited edition Australian eucalyptus oils collection comes from central South Australia.

Extraction method

Steam distillation

Description

Blue mallee eucalyptus oil has a typical, rich, camphoraceous and sweet eucalyptus aroma. The aroma of blue mallee is reminiscent of a typical eucalyptus oil due to its very high 1,8-cineole content.

Key constituents

The essential oil obtained from *E. polybractea* is dominated by 1,8-cineole. Other constituents include limonene, α -pinene, α -terpineol and terpinene-4-ol. Sesquiterpenes are not commonly found in this oil.¹

The major constituents found Perfect Potion's blue mallee eucalyptus oil are α -pinene (0.846%), α -phellandrene (0.631%), *d*-limonene (0.466%), 1,8-cineole (92.261%), α -terpineol (0.381%), terpinene-4-ol (0.568%).

AROMATHERAPY USES

Actions

Analgesic, antibacterial, antineuralgic, antirheumatic, antiseptic, antiviral, decongestant, deodorant, expectorant, febrifuge, rubefacient^{4,5,6}

Respiratory system

All 1,8-cineole rich eucalyptus oils are a very effective and important essential oil for the symptomatic treatment of obstructive respiratory conditions such as bronchitis, asthma, the common cold and other conditions associated with catarrh of the upper respiratory tract.

Eucalyptus is best known as a decongestant inhalation for colds and catarrh.⁷

Schnaubelt recommends using *E. radiata* oil as an inhalation and for topical use for rhinitis, flu, otitis, sinusitis and bronchitis.⁸

I suggest that the blue mallee eucalyptus oil with a naturally high 1,8-cineole content would be ideal as an inhalation for respiratory tract congestion and infections.

Balacs suggests during a respiratory tract infection such as a common cold, the nasal and lower respiratory passage become constricted which in turn makes breathing difficult. Research indicates aromatic inhalations containing 1,8-cineole rich eucalyptus oils can significantly improve respiratory function. It has been suggested the mechanisms of action of such respiratory congestion may be reflex, and related to nerve stimulation by the essential oils.⁹

Musculoskeletal system

The 1,8-cineole rich eucalyptus oils can be used to relieve insect bites and muscular aches and pains. It is indicated for rheumatic pain of a cold nature and may be used to relieve muscular aches and pains and neuralgia.^{4,6,7,10}

I believe that the Northern mallee eucalyptus oil would be perfect in blends for the musculoskeletal system. Eucalyptus oil is also recommended for the treatment of headaches, neuralgia and debility.^{4,10}

Psychological

The fresh aroma of the 1,8-cineole rich eucalyptus oils helps to dispel melancholy, revive the spirits, restore vitality and a positive outlook. Eucalyptus oil helps to disperse the negative feelings associated with such situations, and gives us, inwardly, 'room to breathe'.⁶

I find the scent of narrow leaf peppermint eucalyptus oil very soothing and comforting and suggest that this oil would be ideal for supporting the psyche.

Holmes states that eucalyptus oil can help us whenever we are faced with situations marked by confusion, ambiguity or negativity. The scent of eucalyptus revitalises our psyche to make us more confident to tackle any obstacle or challenge we are faced with.¹⁰

Skin care

Eucalyptus oil is effective as an insect repellent.^{4,7}

Subtle

Eucalyptus oil may be used at a subtle level to cleanse any place where there has been conflict or where negative energies are felt.¹¹ Eucalyptus oil is also described as a fragrance of renewal and is recommended for those seeking new horizons.¹²

Keim Loughran and Bull explain that eucalyptus oil helps us become aware of the emotions associated with burnout and stress. They state that eucalyptus oil helps to remove the emotional energy blockages and allows us to take a deep breath and get a new perspective on the situation.¹³

Zeck recommends using eucalyptus whenever we feel overwhelmed with our life. It allows us to discover ways to respond to situations rather than overreacting when our ability to respond is diminished.¹⁴

Blending

For the relief of muscular aches and pains and rheumatic conditions, consider blending **northern mallee eucalyptus** with essential oils such as black pepper, cajeput, clove bud, fragonia, kunzea, ginger, spike lavender, rosemary or thyme.

For the relief of colds and influenza, consider blending **blue mallee eucalyptus** with essential oils such as bay laurel, cajeput, *Eucalyptus dives*, *Corymbia citriodora*, fragonia, ginger, lemon, manuka, peppermint, pine, rosemary, tea tree or thyme.

For the relief of bronchial congestion, consider blending **northern blue mallee eucalyptus** oil with essential oils such as aniseed, *Eucalyptus dives*, Atlas cedarwood, pine, rosemary or thyme.

As an insect repellent against mosquitos consider blending any of the **1,8-cineole rich eucalyptus oils** with essential oils such as cajeput, *Corymbia citriodora*, citronella, Virginian cedarwood, lemongrass, niaouli, or peppermint.

To promote mental clarity and alertness consider blending **narrow leaf peppermint eucalyptus** with essential oils such as basil, fragonia, lemon scented gum, lemon scented iron bark, lemon, lemon myrtle, cold-pressed lime, peppermint or rosemary.

Safety

Eucalyptus oil has been reported to be non-toxic, non-irritant and non-sensitising.^{4,6,10}

Eucalyptus oil preparations should not be applied to the face, especially the nose of infants or young children.¹⁵

Broad leaf peppermint eucalyptus

Botanical name

Eucalyptus dives

Synonyms

Broadleaf peppermint, blue peppermint, peppermint gum, peppermint eucalyptus

Family

Myrtaceae

BOTANY AND ORIGINS

E. dives occurs in a wide range of habitats from the foothills of the main ranges in southern NSW.²

The species is a small to medium-sized tree, often occurring on sunny, northern slopes of hills with shallow, often stony soils. It can be found on the tablelands and lower mountains of southeastern Australia.³

It is usually a small to medium tree which grows up to 12-15m in open conditions.² The foliage is harvested annually from wild trees in Australia which are felled and allowed to coppice.¹

There are three types of broadleaf peppermint eucalyptus:

- 1,8-cineole chemotype (*E. dives* var. "C")
 - piperitone chemotype (*E. dives* var. Type).
 - phellandrene chemotype (*E. dives* var. "A") which yields an oil with approximately 60% α -phellandrene and 2 to 8% piperitone.²
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METHOD OF EXTRACTION

Peppermint eucalyptus oil is steam-distilled from the freshly cut leaves and twigs.

CHARACTERISTICS

The *E. dives* type "A" essential oil is a colourless to pale yellow mobile oil with a fresh spicy-minty and slightly camphoraceous odour.¹⁶ (Currently stocked at Perfect Potion.)

CHEMICAL COMPOSITION

The chemical composition of the piperitone chemotype *Eucalyptus dives* essential oil was reported as follows:

α -pinene (1.1%), α -phellandrene (19.52%), 1,8-cineole (0.45%), *p*-cymene (3.36%), terpinolene (2.02%), terpinen-4-ol (4.0%), piperitone (52.27%), trans-piperitol (0.27%), globulol/viridiflorol (6.03%).²

HISTORY

The leaves of the piperitone chemotype have been used as a flavouring in Australia since colonial times, especially in combination with brewed black billy tea.¹⁷

ACTIONS

Analgesic, anti-neuralgic, antiseptic, decongestant, expectorant, insecticide, mucolytic, rubefacient.^{4,8,19}

AROMATHERAPY USES

Musculoskeletal system

Peppermint eucalyptus oil is recommended for the treatment of arthritis, muscular aches and pains, rheumatism, sports injuries and sprains.⁴

Nervous system

Peppermint eucalyptus oil is recommended for the treatment of headaches, neuralgia and debility.⁴

Respiratory system

Ketones are reported to be effective at reducing mucosal secretions caused by respiratory tract infections.²⁰

Piperitone is a relatively harmless ketone, which makes it highly effective as a mucolytic agent for bronchitis.⁸

E. dives ct. piperitone oil has excellent mucolytic properties. When it is blended with a 1,8-cineole-rich eucalyptus oil, it becomes a very effective expectorant. This is a great blend for providing relief to congestion associated with upper respiratory tract infections.⁴

Skin care

Schnaubelt recommends using *E. dives* ct. piperitone oil in skin care to calm hyperactive sebaceous glands.⁸

Blending

For the relief of the symptoms of colds and flu associated with bronchial congestion, consider blending peppermint eucalyptus oil with essential oils such as cajeput, 1,8-cineole-rich eucalyptus, lemon scented gum, fragonia, ginger, lemon, lemon myrtle, niaouli, pine, rosalina or tea tree.

For the relief of muscular aches and pain consider blending peppermint eucalyptus with essential oils such as cajeput, clove bud, northern mallee eucalyptus oil, ginger, kunzea, lavender, peppermint, rosemary or thyme.

Schnaubelt recommends blending peppermint eucalyptus oil with 1,8-cineole-rich eucalypt oils to create a very effective expectorant that provides relief from congestion associated with upper respiratory tract infections.⁸

Safety

It is non-toxic, non-irritant and non-sensitising.^{4,8,21}

Lemon scented gum

Botanical name

Once called *Eucalyptus citriodora*, it is now classified as *Corymbia citriodora*.

ORIGIN

Lemon scented gum is one of the best-known eucalyptus, commonly planted in Australia and around the world. Brooker explains that it is unusual among eucalypts of subtropical origin in that it thrives in southern Australia among winter rainfall regimes.³

The lemon scented Eucalyptus found in Perfect Potion's limited edition Australian eucalyptus oils collection comes from western NSW.

EXTRACTION METHOD

Steam distillation

DESCRIPTION

Lemon scented gum has a strong and very fresh pleasant citronella-like aroma with a sweet, balsamic-floral dry-out note.¹ This oil has such a beautiful fresh vibrant and energising scent.

CHEMICAL COMPOSITION

The major chemical constituent found in Perfect Potion's lemon scented gum essential oil is citronellal (75.35%).

ACTIONS

Antiseptic, antiviral, bactericidal, deodorant, expectorant, fungicidal, insecticide.^{4,5}

AROMATHERAPY USES

Lemon scented gum oil is an effective anti-inflammatory for arthritis and helps to relieve muscular tension. Schnaubelt suggests that it works best when blended with everlasting oil.⁸

Schnaubelt states that lemon scented eucalyptus oil's sedative qualities make it useful for the treatment of sleeplessness.⁸

Lemon scented eucalyptus oil is recommended for the temporary relief of asthma, laryngitis, colds, fever and other infectious diseases.^{4,5}

Lemon scented eucalyptus oil is recommended for treating athlete's foot and other fungal infections. It is highly recommended as an insect repellent.

BLENDING

Consider blending lemon scented eucalyptus oil with essential oils such as basil, Atlas or Virginian cedarwood, citronella, 1,8-cineole-rich eucalypts, lemongrass, palmarosa or vetiver to create a natural insect repellent.

For muscular aches and pains consider blending lemon scented gum oil with essential oils such as black pepper, northern mallee eucalyptus oil, ginger, kunzea, spike lavender, peppermint, pine, rosemary, or pine.

To alleviate sleeplessness, consider blending lemon scented gum oil with essential oils such as bergamot, lavender, neroli, sweet orange or sandalwood.

To create an uplifting and energising blend consider blending lemon scented gum oil with essential oils such as basil, black pepper, ginger, lemon scented iron bark, lemongrass, lemon myrtle, lime, pine or rosemary.

For the relief of colds and flu, consider blending lemon scented gum oil with any of the 1,8-cineole-rich eucalypts or peppermint eucalyptus.

SAFETY

Lemon scented gum oil is non-toxic, non-irritant and non-sensitising. However, essential oils rich in aldehydes such as citronellal may cause sensitisation reactions if used undiluted.

Lemon scented iron bark

Botanical name

Eucalyptus staigeriana

ORIGIN

This is a small to medium-sized tree, which in its natural habitat grows in the granite or sandstone hills of Cape York Peninsula in far northern Queensland.³

The lemon scented iron bark found in Perfect Potion's limited edition Australian eucalyptus oils collection comes from far north Queensland.

EXTRACTION METHOD

Steam distillation

DESCRIPTION

E. Staigeriana is one of two eucalypt species that are known for their lemon scented aromas. Lemon scented ironbark has a sweet and

fresh, fruity-lemony aroma. This oil has a divine and heavenly sweet refreshing scent that has a perfume like quality to it.

KEY CONSTITUENTS

The major constituents found Perfect Potion's lemon scented ironbark oil are α -thujene (1.678%), α -pinene (0.807%), myrcene (1.783%), β -phellandrene (36.766%), p-cymene (0.601%), 1,8-cineole (0.623%), γ -terpinene (1.32%), citronellal (3.081%), citronellol (2.211%), nerol (0.949%), geraniol (3.036%), neral (9.955%), geranial (12.704%), methyl geranate (3.672%), neryl acetate (1.17%), geranyl acetate (2.791%), caryophyllene (0.36%).

ACTION

Anti-inflammatory, antimicrobial, antiseptic, uplifting.¹⁹

AROMATHERAPY USES

I am surprised that lemon scented ironbark is not popular in aromatherapy as it has such a well-balanced lemon aroma. It has a very diverse range of chemical constituents. The aldehyde content is naturally quenched by limonene.

It has a range of monoterpene hydrocarbons, monoterpene alcohols and esters that would give the oil excellent antiseptic properties with a lower risk of dermal irritancy compared with other aldehyde rich essential oils.

BLENDING

Lemon scented ironbark oil has a pleasant, light, sweet, refreshing citrus note that allows it to blend very easily with other citrus oils such as sweet orange, grapefruit, lemon, lime or mandarin.

To alleviate anxiety, stress and nervous tension, consider blending lemon scented ironbark oil with essential oils such as Atlas cedarwood, Virginian cedarwood, fragonia, geranium, lavender, neroli, sweet orange, petitgrain or sandalwood.

For the prevention of colds and flu, consider blending lemon scented ironbark eucalyptus oil with essential oils such cajeput, bay laurel, 1,8-cineole-rich eucalypts, lemon myrtle, fragonia, kunzea, lemon, manuka, kanuka or tea tree.

SAFETY

There is no clinical data on skin sensitisation, however, due to the citral content, Tisserand & Young recommend a dermal maximum of 3.4% to avoid skin sensitisation.²¹

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