



AUSTRALIAN ROAD TRIP!

I need to know more about these 'other' essential oils emerging from Australia, don't you? We all know about Tea Tree and Sandalwood. Both have a fantastic history and a story that you feel is still developing (read our other Elementary articles), but what about these other unusual names that we keep hearing about? 'Budda' something, 'a lavender and tea tree oil', 'Blue' this, 'green' that and oh, 'Manuka' from New Zealand! Isn't that just for honey?

Well let's get to know the story together and go on an **Aussie Essential Oil Road Trip!!**



WESTERN AUSTRALIA

- Sandalwood WA (*Spicatum*)
- Sandalwood 'Indian' (*Album*)
- Sandalwood Nut Oil

First of all, let's land in Perth, work our way clockwise and should time allow, pop over to New Zealand. Perth is the capital of Western Australia (WA) and WA is home to sandalwood. Now the sandalwood traditional growing area is the 'Wheatbelt', an area towards the central and southern parts of WA. Many of the newer plantations are also in this region to keep the trees growing in their natural habitat. Distillation is done either in and around the Perth region or in Albany, along the South West coast.

Sandalwood Oil WA (*Santalum spicatum*) is a desert type of tree native to Australia and found predominantly in the middle and southern parts of Western Australia. Since the late 1990s many long-term plantations have been established covering around 15,000 hectares. Plantings are set to continue at 1-2,000 hectares per annum. These will be harvested when the trees reach an optimum maturity but not before they are 15-20 years old (some will be this age very soon).

Sandalwood is obtained through steam distillation of powdered sandalwood mainly from the lower parts of the tree with the better quality oil coming from the butts and roots.

Given its sweet, wood notes sandalwood is used in many modern and traditional fragrance applications as both a base note and a natural fixative. In aromatherapy it can be used for relieving throat and chest conditions as well as being used to ease stress and depression.

Sandalwood Nut Oil (*Fusanus Spicatus Kernel Oil*) is a new oil emerging in the market, derived from the nuts of the same spicatum tree. It is going to be for the high-end cosmetic market given its unique property of a component called ximenynic acid. Apparently many leading cosmetic companies have tried many times over the years to find and isolate a natural source of this chemical as it is thought (and clinical trials confirm) to be one of the best anti-aging products available – once referred to as 5 times more powerful than Q10!

Given all the sandalwood growing in plantations and the fact the nuts continue to coppice we now find ourselves with a sustainable source. In addition, many trials have taken place to assess the best method of distillation and it was found to be by super-critical CO₂ extraction. This keeps the integrity of the ximenynic acid allowing it to be stored and used effectively in a variety of applications.

I'm sure this will be one to watch in the future as none of us want to look too old too quickly!!

As we head North in WA (about 1,800 kms) we find what many seem to have been talking about for decades – row upon row of plantation sandalwood, but this time the 'Indian' type, *Santalum album*.

Sandalwood Oil Indian (*Santalum album*) is well known in the industry as it has been used in fragrances for generations. However it is more commonly known as being from India but after years of deforestation and no replanting, India as a source is no longer viable. Plantations have been established now for 20 years and finally we are seeing small volumes of oil emerge from this species in Australia.

The Indian sandalwood plantations are in areas that are not typical of the traditional growing areas in India, but rather in tropical environments, which speeds up growth. While the benefit is that the trees grow quickly, the down side is the requirement for increased weed management to keep the trees alive.

The first significant harvest to produce Indian sandalwood oil on a commercial scale was undertaken in 2014. The good news is that the quality and odour profile of the oil is quite good and very acceptable to the fragrance industry. While the volume produced in 2014 was small, believed to be less than 1 ton, future years will see significant growth, with many forecasting annual oil production in excess of 150,000 kg if 50% of the heartwood is converted to oil. This is estimated to be four-times greater than current total production of Indian sandalwood oil in India itself. This is likely to change the dynamics of the Indian sandalwood market for many years to come.

So that's WA's contribution. Big place! Did you know Western Australia covers one third of Australia's land mass – over 2.5 million square kilometers!!

There are other products coming like *Eucalyptus Horistes* and another wonderful aromatherapy oil called Fragonia (*Agonis fragrans*), but we need to leave something for our next visit.

Now let's move further east and to the Northern Territory.....

NORTHERN TERRITORY

- Blue Cypress Oil

We arrive in Darwin, the capital of the Northern Territory (NT) after 2 days of driving the 2,600 kms, seeing very little civilisation along the way. The Northern Territory is home to one of Australia's famous landmarks, Ayres Rock (Uluru to the locals), but that's literally another 2,000 kms south of here so we won't be passing soon!



Ayres Rock (Uluru), Central Australia

Essential oils from this territory are little known, in fact there is only one to note, but it's a good one! Its Blue Cypress oil.

Blue Cypress (*Callitris intratropica*), is a large tree, growing up to 40 metres high. The oil is produced by steam distilling the wood and bark, which after 5 to 7 days delivers a rich blue oil. The oil is classified in the woody family and is high in guaiol.

Today Blue Cypress oil is finding its way into many modern perfumes as an alternative woody base note to that of vetiver, sandalwood and maybe guaiacwood, particularly for men's fragrances and cosmetics. There is one single producer who has recently invested in a new boiler ensuring that there are not any issues regarding sustainability.

As a therapeutic product it is already well used as the oil is known to have excellent anti-inflammatory and pain-relieving properties, particularly against insect bites / stings, which is very useful in these parts!!

We're on the boarder of Kakadu National Park, which reminds me of another interesting product, known mainly in the beverage market called Kakadu Plum (*Terminalia ferdinandiana*). The product, freeze dried from the fruit of the Kakadu tree, is one of the highest sources of vitamin C known in the world – over 60 times that of orange and 50% more than rosehip.

Managing the process of collecting the fruits from remote parts of NT and WA has complicated the commercial viability of this product. The fruit has to be picked in a tropical climate, then stored, chilled, transported across Australia and freeze dried to ensure the vitamin C doesn't break down. If accomplished this is a fantastic health nutritional health product and is also viable as a skin-whitening agent in cosmetic applications. Maybe more on this another time but as you can see there are lots of interesting products down here!

So we're leaving Northern Territory and heading to Cairns in Queensland. Just a short 2½ flight to start our tour of the Tea Tree plantations. Hang on, you thought Tea Tree came from New South Wales (NSW) didn't you? Well you're half right as around 75% does, but we shouldn't discount the contribution from Queensland.

QUEENSLAND

- Tea Tree Oil

We're now at the top of the Great Barrier Reef area, heading west to visit many former tobacco farmers who amongst other crops produce a high quality Tea Tree oil. Here a co-operative consisting of 17 farmers collectively produce around 80 MT per annum. It's low cineol (a favourite for Europe) and due to the climate they can often get 3 harvests every 2 years.

Tea Tree Oil (*Melaleuca alternifolia*), needs no introduction to most, but as Australia's largest volume export of essential oils (500 MT) we should cover some basics again.

Steeped in history, this therapeutic oil is nature's answer to a natural first aid kit, and most Australians know this and grow up with it in their houses, their cars and their basic travel kits, but why? Well, its combination of constituents lends itself to many applications. In the personal care world its antimicrobial properties are used in treating acne. It's used as an anti-fungal in a number of feet and nail care products. You will find it in oral care products for treating cold sores and mouth infections but more often than not it is simply used as an antiseptic for bites and minor cuts.

Its use in the perfumery market is limited but that's taking nothing away from its unique odour. It is not unpleasant and used in combination with lavender (or other florals) or lemon & lime it has an uplifting effect often found in body wash products – so it cleans well and smells good!

Its uses don't stop here. Studies on more industrial applications have been on-going for years and it is expected that demand for tea tree will continue to grow. We will find more tea tree when we head further south towards the Gold Coast and New South Wales.

There are other essential oils produced here but over time either the commercial interest in the oils haven't materialised or other origins have taken over as the leading producers. For example, Lemon Myrtle oil (*Backhousia citriodora*) is a very interesting product. To use a reference to the other one this is "more lemon than lemon", as it contains over 90% citral. As a therapeutic oil it finds itself blending well with other Australian natives, but commercially there are many more

economic ways to produce and isolate citral both naturally and synthetically.



Queensland Gold Coast bordering New South Wales

Another example is *Eucalyptus citriodora*. We are all familiar with this oil but associate it with production in Brazil and China. Historically Australia produced on a commercial scale but the costs of cultivation and processing here are far greater than those of other countries who have also invested over many years in larger plantations.

We're now heading south, via Queensland's capital Brisbane and down to the New South Wales via the border city of Gold Coast and after a few days enjoying the surf, finally arriving in northern New South Wales.

NEW SOUTH WALES

- Eucalyptus Radiata Oil
- Rosalina Oil
- Tea Tree Oil

The northern parts of New South Wales (NSW) are home to the traditional farmers for Tea Tree oil and it's where the story began. You can read this in one of our previous Elementary articles in November 2014, which gives you an insight into the oils discovery and history. Today NSW distils around 400 MT and is also home to some of the biggest producers.

South of NSW's capital Sydney we reach an area known for eucalypts. Among other places in Australia, eucalypts grow extensively but you'll be surprised how few are cultivated for oil. There are many failed managed investment schemes 'MIS' (failed or bankrupt plantations) to be seen in these areas. It seems only natural that Australia should produce more eucalyptus oils but sadly the costs of manufacturing here make most projects unviable. That said, there are some interesting species amongst the several hundred known to us, a popular one being *Eucalyptus radiata*.

Eucalyptus radiata is unusual due its odour. Whilst similar in many ways to the more popular *eucalyptus globulus* (also common to Australia), the odour is much milder, almost fruity giving

you an oil with the same benefits, but a more pleasant odour. Too good to be true? Well actually yes.

Unfortunately, *E. radiata* isn't produced in high volumes and supply certainly cannot keep up with the market demand. The poor economies and supply dynamics push up prices to three times that of *E. globulus*, pushing the oil into the more specialist market.

We met one producer who had aspirations of expanding his operations with the right investment, but ascertaining the true market demand and price expectation is difficult. You need to remember there are hundreds of eucalypt species in Australia. Eucalypts make up around 80% of the forestry mass and cultivating such large trees is difficult, timely and expensive. Only managed plantations where younger trees are cultivated would make more economic sense but this seems is a long way away for the moment.

Also growing in these parts is a product called **Rosalina** (*Melaleuca ericifolia*). Traditionally this has been cultivated and distilled on a small-scale. However, recent investments on islands off the Tasmanian coast means that this one now belongs to a story a little further on in our road trip! Jumping over to South Australia from Australia's capital Canberra, a short 1 hour flight, gets you to Adelaide.

SOUTH AUSTRALIA

- Buddawood

Home to some famous wine makers and some wonderful vineyards, South Australia (SA) is more known for 'Barossa Valley' or 'McLaren Vale' rather than essential oils. Whilst SA can't boast about any essential oils being grown there it is home to some processing, in particular one oil called Buddawood.

Buddawood (*Eremophila michelii*) is cultivated close to the borders of QLD, NT and SA, with the wood being shipped to South Australia for processing. This is a fascinating oil which may yet be one for the future in some modern fragrances.

It has been around for some time but never in a commercial capacity until a couple of years ago. Previous hexane extracted oil by producers in New South Wales never really got off the ground as sustainability was always an issue, including the price. Now



Australia's Great Ocean Road (Victoria)

with better technology and using steam distillation of a long-term secured supply, buddawood oil can be considered for perfumery applications today and in the future.

If you find yourself in this part of the world then don't just rush through – it's beautiful and if you like your red wine, then there is nowhere better. So after much wine tasting and a few slow mornings it is back to Melbourne in Victoria driving along the Great Ocean Road.

TASMANIA & ISLANDS

- Kunzea
- Lavender
- Rosalina

We're actually not stopping in Melbourne but instead heading over to the airport for the short flight across the Tasman Sea to Tasmania. Although dwarfed by Australia's mass, at 68,000 km², Tasmania isn't a small place. For comparison it's slightly bigger than Sri Lanka and slightly smaller than Scotland (or for the American's readers somewhere between West Virginia and South Carolina!).

I once read a quote from a Symrise VP for Scent & Care that Tasmania has "the purest air" and this is absolutely correct. You can be assured that whatever you buy here, especially a product steam distilled from nature, will be the best of the best for its kind.

One product full of history here is Lavender (*Lavandula angustifolia*). The Tasmanian lavender story dates back to the early 1920s when an English perfumer migrated here and planted lavender seeds taken from the French Alps. The perfumer, C.K. Denny, named the estate where they made the plantation Bridestowe after his home town in Devon, England. The family owned the estate until 1989. Since then the estate has been under the control of many organisations but most recently the estate and still is owned and managed by Robert and Jenifer Ravens who have given the estate a new lease of life. Today they produce around 1,200 kilos of oil, which is highly regarded within the fine fragrance and aromatherapy markets, commanding a premium price with some acclaimed references.



Wineglass Bay, Tasmania

Another oil native to Tasmania and its surrounding islands is Kunzea essential oil.

Kunzea (*Kunzea ambigua*) is derived by steam distillation from the terminal branches and is a member of the Myrtaceae family. Also called “White Cloud” this has been around in the aromatherapy markets since the mid-1990s but has recently been given fresh life as newer producers look to scale-up production.

We mention that Kunzea is from Tasmania and “surrounding Islands” and it’s on one of those “surrounding islands’ where production has been scaled up, an island called Flinders Island. Situated just off the North West Tasmania coast, Flinders is inhabited by just 800 people and is considered prime farm land. Here Kunzea and other native plants and trees grow wild and in abundance. A project here to set up distillation and plantations for plants in their native habitat means more capacity and better economies for this and other oils in the future.

The Australia Therapeutic Goods Act claims evidence to show it can assist with temporary relief of pain associated with arthritis and for the relief of muscular, tendon and joint aches and pains. This oil will also offer temporary relief for symptoms of influenza.

As a perfumery ingredient it is being recognised as something unique in the green herbaceous family and can already boast a number of references. Harvested at the right times it can enhance the content of viridiflorol which can also be isolated and sold as a single component.

Another oil discovered on Flinders Island is a product called Rosalina or as some call it “Lavender Tea Tree”.

Rosalina (*Melaleuca ericifolia*) is part of the same family as tea tree, hence it’s known other name, “Lavender Tea Tree Oil”, yet its major component is linalool. It has existed in the aromatherapy market for around 20 years, having first been identified in the 1950s but this recent investment in cultivation on Flinders Island has increased production and brought with it some new positive economies. As a result Rosalina is now finding its way into many new applications – and why not? There are many body care and personal care products in the market combining the odour and benefits of lavender and tea tree, yet this special oil offers both the linalool and 1,8 cineole components that highlight those respective oils. Typically, linalool is found at concentrations of 45% and 1,8 cineole around 20%.

Combining these attributes makes rosalina a popular product in the aromatherapy / natural health market. Topically applied it is known to offer good antiseptic benefits, helps with respiratory problems, and is calming and soothing. It is also a gentle oil so is good for use with children, sometimes even referred to as 'soft tea tree'.

The people of Flinders Island along with their support team are looking at a number of essential oils, once common to Australia or with the potential to break into new markets. These could include other eucalypts and peppermint which over recent years have been lost to other producing countries or upscaling these more specialist oils that to date have only been wild harvested.

We've just about covered Australia but given our proximity to New Zealand it seems like we should continue our adventure as there is one particular oil that is a particular interest, so back on board the airplane and off to Auckland!!

NEW ZEALAND

- Manuka Oil

Perhaps saving the best until last a visit to the north island of New Zealand is in order to discover more about Manuka Oil.

Manuka Oil (*Leptospermum scoparium*) can also be referred to as Red Manuka or locally Kahikatoa. Over recent years 'Manuka' has become more familiar as a honey, known to be high in antioxidants as well as being damn tasty!

Honey is good for us due to its hydrogen peroxide properties, which make it a good antibiotic but manuka honey offers even more components, which act as an antibiotic making it a 'super strength' product. This component is methylglyoxal (MG). Often applied externally on sores and burns manuka honey also has inner health benefits to treat infections. So powerful some experts believe this to be one of the only natural products to fight the hospital superbug infection MRSA (Meticillin-resistant *Staphylococcus aureus*).

It's as a possible superbug antibody that the oil production comes into its own. Maintaining these antibiotic properties through its β -triketones balance the oil is making its way into the healthcare markets at an interesting pace. Although still wild harvested from areas along the East Cape of New Zealand, recent improvements in the collection and extraction process (steam distillation) have increased capacity and with it the producer's ability to offer a more sustainable product. Capacities are now thought to be tonnes and not kilos as the market continues to take a great interest in this hidden treasure.



So that's it for this road trip. It's been long but fascinating and I'm sure we'll be back again one day to discover even more. For now, more details on each can be found on our website where we keep adding literature and new products every week. You will be able to keep track of how the market is developing for each of the above-mentioned products in our regular market reports.

Safe Travels!!