IPH Newsletter November 2018

"A Community Not for Profit Association"

Welcome to the November edition of our **Indigenous Plants for Health** newsletter. We plan for the newsletter to gradually expand into a leading publication focused on Australian native medicinal and edible plants. Comments and contributions from members are welcome, please forward them to the editor at trueunicorn11@gmail.com.

Plant of the month By Andrew Pengelly PhD.

Melaleuca – paperbarks

Melaleucas are sometimes referred to as tea tree (tea tree oil), but they are more correctly named paperbarks. There are approximately 300 species nationwide, if we count the *Callistemon* genus, which some authorities include in the *Melaleuca* genus. Whatever their name, this group of plants consist of evergreen trees and shrubs, with aromatic foliage and distinctive bottlebrush shaped flower spikes.

They are distributed mainly throughout Australia, however a few species are found in SE Asia and Pacific Islands. Botanical features of 140 Melaleuca species are described in Ivan Holliday's Field Guide to Melaleucas (1989) while essential oil profiles for the genus (including *Callistemon*) are documented in a classy book titled *Melaleucas. Their Botany, Essential oils and Uses* (Brophy, Craven & Doran, 2013). Both texts feature excellent photographs and line drawings for most species.

Melaleuca alternifolia

M. alternifolia – tea tree oil

This is one of the top selling essential oils in the world. Unlike Eucalyptus, most of the oil is grown and produced in Australia – notably in the natural area of natural distribution in northern NSW.

"First-aid kit in a bottle"

Chemotypes: The Australian standard (ISO 4730:2017.E) for any oil traded as tea tree oil contains 30-48% terpinen-4-ol, 14-28% α-terpinene and less than 10% 1,8-cineole. For anyone intent on establishing a tea tree oil plantation, it is paramount the propagation material used is derived from plants with the this chemotype. In aromatherapy terms, the odour of tea tree oil is regarded as fresh, sharp, and somewhat medicinal. It was once promoted as "The first aid kit in a bottle".

Tea tree oil is clinically proven for treatment of acne, scabies, resistant Staph. aureus and fungal infections.

M. quinquenervia – coastal paperbark

This is the common coastal paperbark found in eastern NSW north from Sydney and Queensland. The common chemotype is comprised of *E*-nerolidol (74–95%) a sesquiterpene alcohol, and linalool (14–30%). Another chemotype, known as niaouli oil, is high in 1,8-cineole.

Niaouli also occurs in New Caledonia, the main commercial source of

How to use Melaleuca

While this article focuses on essential oil distillation, since most people don't have stills at home, the benefits of these species may be obtained by alternative methods. The leaves are pleasant to drink as teas, or infused in a vegetable oil for topical use. Herbalists may prefer to make up tinctures, using an aqueous-ethanol solvent.

this oil.

The compound nerolidol is closely related to nerol from neroli oil, and it is similarly sweet in odour and gentle in action. Nerolidol itself has numerous documented activities, including antimicrobial, antifungal, antibiofilm, antiparasitic, anti-inflammatory, antinociceptive (pain relieving), antitumor, insect repellent and skin penetrating, making the essential oil an effective addition to various topical medications (Weng-Keong et al., 2016).

Coastal paperbark swamp Myall Lakes area.

Melaleuca quinquenervia

M. ericifolia swamp paperbark

This paperbark tree inhabits swamps and creeks along the east coast from the NSW mid-north coast south to Tasmania. It is easily propagated from seed and suitable for cultivation., it can tolerate waterlogging and heavy frosts. It withstands pruning and makes an excellent hedge and shelter belt for livestock. The soft foliage is useful for cut flower arrangements.

The essential oil of this species is known as rosalina or lavender tea tree, referring to the high content of linalool, a major constituent of true lavender oil. As with the nerolidol oil described above, this oil has a sweet fragrance and is quite gentle on the skin. Rosalina is calming and relaxing. It is often used as an alternative to tea tree, having similar antimicrobial properties but without the medicinal smell. Rosalina may be inhaled for upper respiratory infections and congestion, especially in children, and applied topically for acne, boils, tinea, Herpes infections, rashes, insect bites (Webb, 2000).

Melaleuca ericifolia

M. nodosa. Prickly leaf paperbark, knobby tea tree

This is another common paperbark in the lower Hunter Valley, it grows to a height of 3-4m, with a rather straggly habit and brittle branches. Yellow flowers in globular heads grow in profusion during the spring.,. The species occurs in coastal and sub-coastal sites between central Qld. and Sydney.

Melaleuca nodosa

This isn't a widely cultivated species, and I am not aware of any essential oil products derived from it. According to Brophy, Craven & Doran (2013) the oil consists of around 20% 1,8 -cineole and 20% terpinen-4-ol plus various other constituents — all less than 20%. However I had two separate samples analysed at the phytochemical lab, Southern Cross University, and they came in at 78% and 80% 1,8—cineole, and around 9% a-pinene as the second component. Clearly the species growing at North Rothbury is a different chemeotype, containing more 1,8-cineole than even most Eucalyptus species, it is clearly a medicinal oil that could be used as a Eucalyptus substitute, with the a-pinene adding to the antiseptic and stimulating properties associated with 1,8-cineole

Hop Bush and the Wollombi Community

By Julie Brown

On 20th October Andrew Pengelly PhD and Research Director of Indigenous Plants for Health, gave a presentation on his research into the medicinal properties of the Hop Bush (*Dodonaea* spp.).

The event was well attended by both locals from the Wollombi area and a number who travelled for other areas. The audience actively participated in a number of questions and interested discussion following the formal part of the session.

It was an intriguing talk. Andrew had searched the area prior to his lecture and found examples of one hop bush species (*D. triquetra)* within easy walking distance. He also commented that he had identified two subspecies of *D. viscosa* when visiting other properties in the Wollombi area.. This species was the main focus of Andrew's research project at the University of Newcastle.

Hopbush has been used by indigenous Australians. The species also occurs in many other countries, where it has also been used by the native inhabitants as a medicinal plant. The versatility of hopbush in treating many health issues was both surprising and fascinating.

Andrew's lecture was held at Wollombi School, courtesy of the Education Trust. We plan to have more of these events in the future, and welcome suggestions for topics and events from our members.

Bush Medicine Series

Ka-wul Aboriginal Education and Cultural Resource Centre

On 29th October Dr. Pengelly gave a presentation to 35 high school teachers on bush medicines, with specific reference to the use of plants that are indigenous to the Hunter Valley, many of which have been or are still used among the Koori population.

Discussions are continuing with the co-ordinator of the Ka-wul Centre, Jo Vincent, and Deputy Headmaster, Luke Rosser, for a series of bush medicine field-days—initially targeting male students with Aboriginal heritage.

TiTree Spirit Rub launched

IPH committee member Rob Santich has launched the first product in his new range of topical herbal medicines a decongestant ointment called "spirit rub".

Spirit Rub combines the essential oils of Tea tree (*Melaleuca alternifolia*), *Eucalyptus*, and Lemon Myrtle, (*Backhousia citriodora*), all of which are listed on our association's Indigenous Health Promoting Plants list.

According to the media release TiTree Spirit Rub is listed on the Australian Register of Therapeutic Goods (TGA), which means that it can be legally marketed for a range of specified health disorders, in particular for the relief of mild upper respiratory tract congestion and cough.

In recognition of the past and present use of these species by Australian Aborigines, a percentage of any profits made will go to support indigenous artists. In addition, seeds from *Melaleuca ericifolia* are being saved, and seedlings being planted out on aboriginal-owned land, in the region where the species grows naturally. For more information on this species, refer to page 2 of this newsletter.

One of the stated objectives of this association is to respect Aboriginal communities and ensure opportunities and rewards flow through to those communities, as a result of shared knowledge.

Indigenous Plant Research

Bush medicine attracts research funding in Queensland

The Cooperative Research Centre for Developing Northern Australia (CRCNA) recently announced a funding contribution of over $360,000 to a partnership between Integria Healthcare, Menzies School of Health Research, Traditional Homeland Enterprises and The University of Queensland.

According to Mark Mayo, the partnership's Indigenous Steering Committee representative and Menzies researcher, the group initiated plans for this project with a view to creating important opportunities for collaboration and mutual learning through the application of modern science to Indigenous knowledge.

"This exciting project will provide opportunities for Aboriginal people to share their knowledge of medicinal plants, developed over thousands of years, with researchers that have expertise in laboratory testing and healthcare product development," Mayo said.

"The project also offers employment and training for Indigenous people, as well as the possibility of developing a sustainable agribusiness for future employment and training in Indigenous communities," he said.

"In addition to laboratory work, there are opportunities to explore and preserve Indigenous knowledge of traditional medicinal plants and their use," said Menzies Honorary Fellow Dr Greg Leach.

The long-term goal of the project is the development of a local industry with opportunities in Indigenous workforce development, sustainable regional development in Northern Australia, and potential export of uniquely Australian, value-added products

http://www.crcna.com.au/news/bush-medicine-partnership-sows-seeds-of-collaboration/

Grow Australian turmeric

Here is a surprise, our own native turmeric , with reportedly similar culinary and medicinal uses as the Asian counterpart.

I planted rhizomes last summer, they died back just like regular turmeric, however in late spring the flowers and floral bracts emerge ahead of the leaves. The pink colour belongs to sterile bracts, the true flowers come out below.

Curcuma australasica

Native turmeric aka Cape York Lily

Geebung Project

Currently the harvesting of fruit from the geebung (*Persoonia linearis*) is underway, in anticipation for the research project into its' antibacterial activity.

For this research design, fruit are being harvested at green, semi-ripe and ripe stages, from two sites—Laguna and North Rothbury.

Semi-ripe geebung fruit

Since the berries are likely to be eaten by birds or fall of the tree before fully ripe, we have initiated a system of bags made from bird-netting, which ensures that ripening fruit doesn't fall or get eaten.

Bag placed over unripe fruit

Once harvested , fruit are placed into zip-lock bags and stored in the freezer until ready for use. By collecting at two sites, this ensures we have an adequate supply of each stage of ripening, and also provides an opportunity to compare the activity and phytochemistry from different sites. Look for another progress report in the next issue.

Medicinal Plant literature reviews

Swamp Mahogony—*Eucalyptus robusta* By Kathleen Bennett

In our Indigenous Health Promoting Plants list, are two *Eucalyptus* species associated with medicinal uses. One of these is the swamp mahogany (*Eucalyptus robusta*) - one of the most highly planted Eucalypts for worldwide lumber production (about 14.6 million ha). The swamp mahogany grows in swampy coastal areas from NSW to Queensland, but is considered an invasive species in some parts of the world. Swamp mahogany is also planted for honey production. Bees produce a dark, highly aromatic honey (Rojas-Sandoval & Acevedo-Rodríguez, 2014).

In NSW, the Yaegl community, was recorded as using the leaves of eucalypt species as a wash to cure colds (Packer, et al, 2012). Traditional uses of swamp mahogany as medicine focus on leaves and kino (exuded gum). The kino is boiled and drunk for diarrhea and dysentery, leaves are chewed into a wad and applied to wounds to promote healing (Kaplam, 2004). Studies have shown that the kino contains an antibiotic, citriodoral (Duke, 1983). There is one report (Orwa et al., 2009) of *E. robusta* having antimalarial activity.

Scientific research

Internally, *E. robusta* leaves have been shown effective in suppressing bacterial endometritis, a inflammation of the lining of the uterine wall (Tiwari, et al., 2018). The study was performed on rats using a methanol extract. In 2016, researchers investigating the chemical constituents of *E. robusta*, found several compounds in the leaves that may be useful in combating Type2 diabetes and breast cancer (Yu, et al. 2016). Another study (Bhuyan, 2018) found that extracts of swamp mahogany showed promise as an antiproliferative against pancreatic cancers.

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E. robusta buds and flowers

Wikipedia Commons

IPH Committee Members

Acting President and Treasurer:

Julie Brown

Vice President: Denis Stewart

Research Director, Newsletter editor: Andrew Pengelly

Secretary: Kathleen Bennett

Regulatory Affairs: Rob Santich

We currently have some vacancies on our committee, if you are interested in taking a more active role we would welcome your participation. Please contact the Secretary on 0431320933 or 0468535234

Indigenous Plants for Health (IPH) is an incorporated association formed with the objectives of raising awareness, sourcing grants and sponsorship for sustainable production of indigenous plant-based products.

https://indigenousplantsforhealth.com/