This free preview includes partial pages of the plants and appendix

Medicinal and Edible Healing Plants of Australia's Sunshine Coast and the Noosa Heads Wilderness

Discover the unique healing power that exists within plants

Scott Rauvers

This title is available at a bulk discount for schools, plant nurseries or similar organizations. For further information, e-mail the publisher at noosaheadspublishing@protonmail.com

For your convenience, this book is also available in Nook and Kindle Versions. Just enter the title into any Internet Search Engine to locate these additional versions

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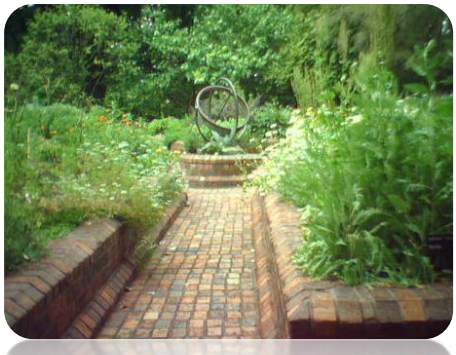
- The Complete Guide to Natural Toothache Remedies and Re-mineralization
- The Vegetarian's Guide to Longevity via Gene Therapy and Raw Foods
- Living Healthy Beyond 120, A Centurion's Plan for Longevity

This edition has published all images in full color as well as the approximate size, diameter and description of the plants shown in this book for easy identification

Photo Credits



I would like to acknowledge the following two photographers for their kind permission in allowing me use of some of the rarer and harder to find images found in this book - **Witjuti Grub Bushfood Nursery** for use of the Silver Aspen photo and **Rob Whyte** of www.sown.com.au (*save our waterways now.com*) for use of the Rough-leaved Elm photo.

Authenticity of Sources

All sources cited in this book come from 3 main sources. 1 - Wikipedia. 2 - Published Research Studies. 3 - Reputable person's knowledgeable in the field of edible plants, fruits and berries. Cited references for each plant stated in this text can be found in the references section of this book.

While every effort has been made to obtain credible information regarding the plant, description and use, some mistakes are inevitable. If you find anything you think is in error, please e-mail the publisher at srauvers@protonmail.com and your requested corrections will updated in a future revised edition.

About the Author

Scott Rauvers grew up in North Queensland's dairy country and after backpacking around Australia, headed off to University in the United States. After graduating trade school studying desktop publishing and word processing, Scott than studied Gerontology (*the science of aging*), sociology and writing at Weber State University in Utah. After a number of years of studying herbs and becoming a master herbalist, he then went on to produce a series of anti-aging books and supplements based upon researching the latest scientific studies and research. His published works have gone on to help thousands worldwide enjoy a more fulfilling lifestyle with renewed confidence towards better health.

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Published by **Noosa Heads Publishing**
91 Noosa Drive. Suite #714.
Noosa Heads, QLD Australia

noosaheadspublishing@protonmail.com

ISBN: 9798769384615

DEDICATION

I dedicate this book to my parents, whose love of the outdoors not only inspired me to become a master herbalist, but who also taught me the importance of living in harmony with nature

The red colored region is the area covered by the plants described in this book. Some plants may grow slightly outside of this region. Many of these plants can also be found growing as far south as the New South Wales border.

TABLE OF CONTENTS

Prologue

Queensland's Sunshine Coast is one of Australia's best kept secrets. Thousands of people flock to the beaches every summer, celebrating its perfect weather and climate. This region of the world is not only special for its temperate climate, but also for its rich biodiversity of plants and animals, with many parts of the surrounding forest looking like scenes straight out of Lord of the Rings.


Wild Cockatoo

Noosa Heads means "*shade*", although it could very easily mean "*place of many birds*". Some of the world's most beautiful birds, only second in splendor to the Amazonian rainforest, make their home here among the majestic towering trees. From the roaming wild cockatoos, to the screeching of lorikeets with their display of dazzling rainbow feathers, it truly makes this region a unique and special place. Hikers along many of Noosa Head's trails are rewarded with tiger butterflies during spring and koala bears and bouncing kangaroos.

After having lived on the island of Oahu Hawaii for more than 10 years and then moving back to Australia and choosing to live along the Sunshine Coast, I was pleased to find that the climate and geography is almost a mirror of that of Hawaii; the exception being there are no daily rainbows, harsh winds or excessive commercial overdevelopment like there is on the island of Oahu.


Wild Lorikeet

The coastline of Noosa Heads harbors a unique geography, in that it is sheltered from the harsh winds

and sun of the Pacific Ocean. This allows it to enjoy plenty of protective lagoons and estuaries for sailboats. The yearly seasonal temperature ranges from a low of 0C during winter to a high of 30C during the damp summer, with annual rainfall averaging 100cm a year; most of which occurs during summer. The rainfall, which can sometimes be a deluge of drenching rain, replenishes the many numerous springs that bubble up from the ground.

This environment is very similar to Hawaii's semi-tropical weather where temperatures average 75 to 90 degrees (24 to 32C) year round during the daytime with winter temperatures being slightly cooler. It is no surprise that the commercial development of this region began a few decades after the first surfers discovered this region and just like Hawaii, whale watching season also takes place during winter. The surrounding beach front cafes and fine restaurants fill the air with their tasty food, and trendy Hastings Street boasts the latest beachside fashion and some very fine art and jewelry stores.

This Book's Journey

Because of my expertise and background in Gerontology (*the science of aging*), I make specific references to plants in this book that have anti-aging benefits. In many cases, anti-aging plants and supplements are foods that protect the body from oxidative stress and can help keep the heart in good health and also be of tremendous value in helping the body recover from excessive exercise.

Further Reading
A profound explanation of why eating green (wild) edible plants promote health and longevity. Mauri Kalervo Åhlberg. August 2021.

Having recently returned to Queensland Australia and deciding to live on Australia's Sunshine Coast, I had noticed after a few months that numerous species of plants in my community exhibited powerful healing properties. Because there is so much exotic wildlife here, I thought to myself, this region may also harbor plants that have unique properties. Hence, after much research I was proven correct. Hence the book you are reading now is the final result of the valuable information regarding these plants and their medicinal and edible properties.

The species of the plants outlined in this book have been used to treat / prevent more than 100 different types of diseases; from cancer to diabetes to melanoma. Nature truly does hold all the secrets; one only needs to know where to look

The beauty of many of these plants, is that many of them are not only edible, or have edible fruits or berries, but are attractive in appearance and can act as shade from the harsh sun or enhance the beauty of an existing garden. This also makes them a great addition to anyone planning to plant a medicinal or fruit garden.

Unlocking the Mysteries of Nature

One of the major discoveries made while writing this book was the fact that women who live on the Sunshine Coast live to an average of 84.7 years [1] (*which is among the longest life expectancies in the world*). Hence, Australia's Sunshine Coast may qualify as a Blue Zone,

which are regions on the planet where people live on average longer than usual.

One of the most common plants used in home gardens on the Sunshine Coast is Lemon Myrtle. Lemon Myrtle is reported to have the highest concentration of pure Citral of any essential oil known; typically containing 90 to 98%, compared to ordinary lemon [2]. This is of significant interest because Citral has been shown to help kill melanoma cells [3] and for those of you reading this who grew up on Queensland well know, the Sunshine Coast is known as the skin cancer capital of the world.

Further study revealed that Burdekin Plum contains substances that kill ovarian cancer cells [4] and another study stated that extracts made from the leaves of Cherry Ballart contain Sideroxylin, which also has been used to treat ovarian cancer [5]. The plant Lemon Myrtle happens to contain an abundance of Limone [4b] (*up to 80%*) and an August 2021 study suggests Limone be studied as a alternative to perillyl alcohol in patients diagnosed with breast cancer [4c]. Another interesting fact is that Flax Lily, which has beautiful luminescent edible berries that are of a deep blue color contain the highly bioavailable anthocyanidin delphinidin, which acts as a potent inhibitor for preventing bone loss in women experiencing postmenopausal osteoporosis [4d].

Another reason for the long life-span of women in this region may be due to the large number of plant species that contain substances that act as a natural antiseptic and the ability to kill bad bacteria [6] [7] [8]. For example, the Melalauca tree which grows wild in this region, has recently been researched for its possible treatment and prevention of COVID-19 [9].

Post-Covid, many Australian companies

encountered an above average demand for Lemon Myrtle. It was during this period that new trees were planted in order to meet this demand [9a]. Hence sentiments towards natural products that promote natural wellness, safety and hygiene are beginning to take place. Hence, sanitation and naturally derived immunity-booster products will enjoy a high demand in the coming years ahead. Lemon Myrtle has shown remarkable potential for use as a natural antiseptic and surface disinfectant [7]. This may also explain the huge COVID-19 migration that took place during 2021, where thousands of people from the southern states literally flocked to this region creating one of the largest real estate housing booms in decades. Perhaps during times of distress the collective human mind seeks out safe places that have natural defense mechanisms against what we are seeking to avoid.

In short summary, there appears to be an above average number of plant species in this region that are responsible for maintaining the health and longevity of women living in this part of the world.

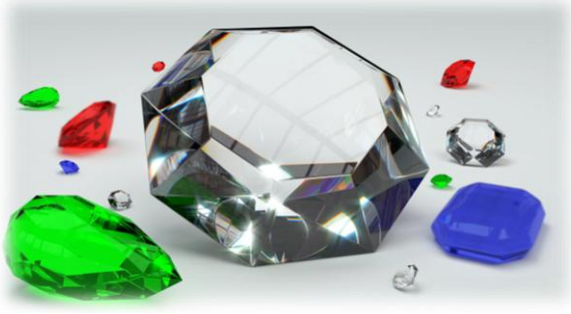
Plants exposed to more sunshine produce more substances that fight free radicals

They don't call it the Sunshine Coast for nothing!!! The abundant sunshine in this region may be responsible for many of these plant's medicinal properties.

A research study revealed that during years there was less rain (*and more sunshine*) from 2017 to 2019, that the total phenolic contents (TPC) in the plant species known as Leucopogon parviflorus actually increased [10] [11]. Hence, more sunshine is causing this plant to produce more substances that fight the effects of harsh sunlight. These extra free radical fighting substances are then passed down onto us as we consume the food or

plant.

Description, medicinal value and edibility all in one book



It is rare to find a book listing all 3 properties of a plant species (uses, medicinal value and edible status) in one publication. Use this valuable knowledge to educate yourself about plants and trees that grow locally. If you are interested in Botany, what better way to get to know local plants than by using this book to explore the species growing right in your backyard.

This book also makes an excellent guide to learning the basic fundamental concepts of a plant's structure, growth pattern and description. It may also save your life if you are a backwoods hiker and run out of food to eat.

If you are a researcher interested in utilizing the healing properties of plants, this book contains a wealth of information on many species that combat many sun related health problems.

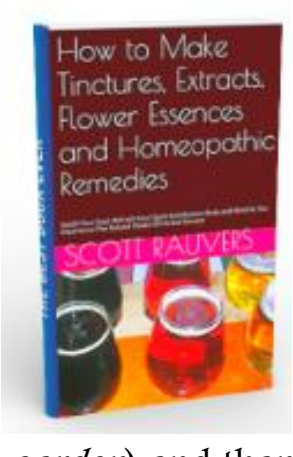
This book also includes plants that are used to produce gold nanoparticles. Gold nanoparticles are used in cosmetic preparations to allow the skin to better absorb the main ingredients in the skincare product.

In summary, the rare gems of valuable information found in this book can be of tremendous value for yourself and for future generations, especially as climate and man-made change continue to alter the landscape in

which we live.

Enjoy the convenience of nature's pharmacy at your fingertips

The 79 + species of plants, all arranged in alphabetical order for your convenience, have been shown to relieve or help prevent the following; possible treatments or prevention for COVID-19, relief or prevention of toothaches, treating ulcers, reduce skin aging, protect the skin from harsh UV rays, strengthen the body's skin against skin cancer and melanoma, treating diabetes, treating stretch marks, snake bite, repelling leaches, insect repelling, scabies, protect the skin from UV rays, prevent the spoiling of fish and much more. Towards the end of this book a section is devoted to many substances found in the plants mentioned in this book that have been scientifically proven to help treat skin cancer when applied topically to the skin. Also you will find an extensive index listing many of the plants named by species, as well as their therapeutic uses and a complete glossary, making the sometimes confusing plant terms found in botany easy to understand. You can easily discover the healing power of many of these plants by purchasing the leaves, roots or barks online (*or growing them in your garden*) and than making them into an extract. You can learn how to make your own extracts in my book titled:



How to Make Tinctures, Extracts, Flower Essences and Homeopathic Remedies.

Seasonality of fruit or berries

Where available, the season the plant flowers is listed in the appendix. Flowering periods stated in this text may vary depending on pollination by bees, environmental conditions or other factors. Hence, some fruits or berries may not ripen at the same time each year or vary in their seasonal ripening.

How long does it take on average before a flower turns into a fruit or berry?

Many people ask how long before the flower turns to fruit? A general rule is that small fruits and berries such as cherries for example, produce fruit in less time; whilst larger fruits take longer. Under ideal conditions it takes on average 6 to 8 weeks for a flower to turn into ripe fruit. This however is just a guideline. For example, after

flowering, the Bopple Nut (*Macadamia tetraphylla*) takes between 6 and 8 months to mature.

Plant composition

Where available, the composition of the species is listed in the appendix. You can also read a small summary of the published study of some plants shown in the appendix. The composition of a plant can give you a general idea of the medicinal and other properties of the plant due to the substances it contains. This also means that when an AP becomes available, it may show you the composition of a plant or berry, and you can use that plant's composition to get a general idea of its medicinal properties.

A home medicinal garden

Use this unique book on medicinal plants to plan a garden that not only can provide healthy nutritious food, but also food that has scientifically validated healing uses. If you are on a healing journey, or a naturopath, know what plants to source locally (*at Farmer's markets for example*) to include in your clinic's healing program. If you are an outdoor enthusiast, use this information to easily and rapidly identify plants that you can use to supplement your food rations. I have also listed plants that can be used to make some of the sweetest tasting jellies and jams you'll find anywhere and some can already be found at your local Farmer's Market.

In addition, learn what type of plant to use to make a wide assortment of useful items; from baskets to belts to fishing traps. For those of you who are already craftspersons, learn what plants can be used to make slow burning candles, necklaces, earrings, coffee substitutes, furniture, wine,

spears, boat planking and more.

The Sunshine Coast has no shortage of fisherman, therefore this edition includes plants, barks and roots traditionally used by the Australian Aborigines to stun fish, making fishing so much more less physically intensive!!

Tips for identifying the correct Species

Each page is devoted to 1 species at a time, including a picture of the plant and its general description. For an in-depth summary of the species, including its medicinal uses, use the appendix. Please note, the results of the studies shown in this book are not always based on human clinical trials. Some studies have been done on animals, others on cells, in vitro or in vivo etc. Therefore, I leave it up to you the reader to review the referenced study (*which is found in the references section*).

Some species shown in this book do not include a medicinal description because they have yet to have a research study published in a respected scientific journal. Therefore the information cannot be listed at this time. When foraging, it can help to bring a tape measure and magnifying glass (*including this book*) to correctly identify the length of the leaves, diameter of flowers and berry of fruit size to correctly identifiy the species when foraging.

If you are tech-savvy and enjoy the convenience of technology, use your Android or Apple I-Phone to download many of the free **Plant Identification Aps** available for download. Examples include: PlantNet, iNaturalist, PlantSnap, PictureThis, FlowerChecker, Garden Compass, Agrobase, Plantix and more.

Many of the plant's medicinal properties can be

unlocked by making an extract from the leaves, roots or stem of the plant. You can learn how to make your own extracts in my book titled: **How to Make Tinctures, Extracts, Flower Essences and Homeopathic Remedies**. This book about extracts is the result of having lived for a number of years in Portland Oregon, a place renowned for having an abundance of healing plants.

The benefits of a plant based diet

Plant Based Foods have been scientifically shown to reduce Cancer Risk. For example, research over the previous 20 years has proven that the nutritional quality of a person's diet improves when a person's diet includes a greater diversity of food groups or items (*Shimbo et al., 1994; Hatloy et al., 1998*).

An assessment study that examined the dietary composition of foods in the United States found that people whose diet included a large proportion of meat, fish, poultry, and eggs were at an increased risk of contracting colon cancer. However, the risk was significantly reduced when a greater reliance on plant based foods was incorporated into their diets (*fruits, vegetables, seeds and nuts*) (*Slattery et al., 1997*).

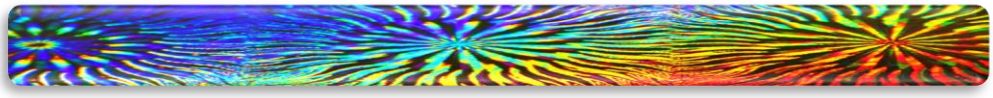
Further Reading

An overview of the health attributes of wild foods. August 2015. Vic Cherikoff and Izabela Konczak PHD.

Plants that help prevent Tooth Decay

It is well known in the anthropological scientific literature that indigenous tribes never had tooth problems until they were introduced to a western diet. This is also true of the Australian Aborigines. Did their rate of dental decay increase because they stopped eating

plants that contained substances within them that prevented tooth decay? This unique book also includes plants scientifically proven to kill or eliminate the S. aureus bacteria; one of the main bacteria responsible for tooth decay. You can learn more about how to eliminate or prevent tooth decay by reading my book: **Avoid Root Canals.101 Homeopathic Nutrition Remedies to Stop Tooth Cavities.**



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Repellent and Antifeedant Activities of Citral-Derived Lactones against the Peach Potato Aphid. Katarzyna Dancewicz et al. Nov 2020.

Effectiveness of plant-based repellents against different Anopheles species: a systematic review. Amin Asadollahi et al. Dec 2019.

Plant-based insect repellents: a review of their efficacy, development and testing. Marta Ferreira Maia and Sarah J Moore. Mar 2011.

Introduction

There are some well-written books and websites on medicinal plants of Australia's Sunshine Coast, however many lack documented research studies to back up their healing claims. Much of the medicinal knowledge of a plant has often been passed down by word of mouth from Indigenous people. Many of today's published studies are discovering that the medicinal properties of a plant described by the indigenous people have proven correct. However, the benefit of including a published study is that it can show the broad range spectrum of a plant's healing uses. For example, while one plant may have been used by ingenious people to treat scabies and ulcers, a published paper on the same plant can show that the plant can also treat toothache and diabetes. Having this valuable knowledge assures that the full potential of a plant is passed down to future generations.

The Healing Power of Local Foods

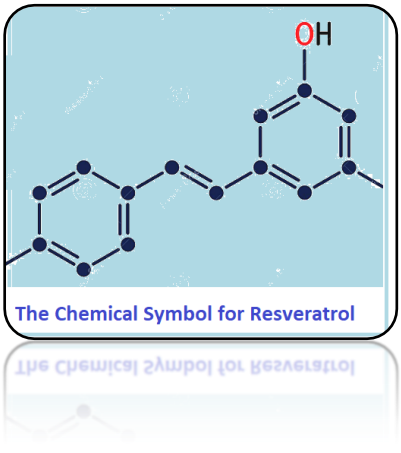
In many of my anti-aging books I show that eating foods that are in season are extremely good for health and healing. The beauty of nature's healing is that many plants found locally may also be used to treat conditions that may have been caused by external local factors.

For example, the Abkhasians, who produce their own buttermilk, are renowned for their extremely long and healthy lives (1) and Zaro Aga, who also lived to a very long age, was reported to have ate a lot of yoghurt.

Yogurt is an indispensable food in the Turkish household and has been so for hundreds of years. The word yogurt dates back to the year 1625 and is a mispronunciation of the Turkish word yogurt.

Did you know?

Whole buttermilk binds readily with resveratrol which enhances its water solubility. This makes buttermilk a useful food carrier for resveratrol. This interaction allows the body to more completely absorb all of the resveratrol (2) (3).



The Chemical Symbol for Resveratrol

Could the mystery of why the Abkhasian's live so long be not only due to their buttermilk, but because of the foods they eat? For example, foods that contain resveratrol include grapes, red and white wine, peanuts, pistachios, blueberries, cocoa, dark chocolate and cranberries, with the highest concentrations occurring in Japanese Knotweed (*Polygonum japonicum*) (4). Simply put, the buttermilk may have been binding with one of the above foods.

Another example of the potent healing power of local plants is the species known as Pigface (*Carpobrotus glaucescens*), which is commonly found growing along beaches on the Sunshine Coast. This plant has leaves that contain a substance used to relieve the burning pain of the sting from the jellyfish (4a) known as the Portuguese man o' war (*Physalia physalis*).

Identifying substances in plants responsible for their healing uses

Queensland Australia is often referred to as the Melanoma (*skin cancer*) capital of the world with 33.6 cases of skin cancer per 100,000 Australians [5]. Many of the plant species mentioned in this book contain substances within them that have been scientifically proven to neutralize the harsh rays of the Australian sun and treat or help prevent melanoma.

The plant species growing in this region have learned and adapted in order to deal with the harsh sun that bathes this region year round and in doing so, naturally produce the necessary substances needed to help combat intense UV radiation. For example, the sap from a common weed that grows locally known as Petty Spurge (*Euphorbia peplus*) has been medically proven to treat skin cancer [6].

Did you know?

Resveratrol is produced by many plants as a defense response to UV radiation [7]

Beer is a popular beverage in Australia and numerous studies have found people who consume 7 or more alcoholic drinks per week are at an increased risk of contracting melanoma. This also includes white wine [8] [9] [10]. Another example of local plants with healing power is the fast-growing, drought-resistant tree called Moringa oleifera, which is just staring to gain widespread medicinal use in Australia. Moringa oleifera is commonly found growing wild along the sunshine coast and its edible properties are described later on.

Moringa oleifera is commonly combined with resveratrol and sold as an anti-aging supplement and when fermented with Rhizopus oligosporus, reduces or eliminates red and itchy skin [12] and Moringa has also been found to protect against lung cancer [11].

Other studies have found Moringa contains an abundance of the anti-aging compound quercetin [13] which is one of nature's most powerful natural anti-aging substances [14]. Most fascinating of all, studies on mice have shown that Moringa oleifera significantly reduced the effects of the processes in the body responsible for the decline of memory [15].

Many parts of moringa are straight-off-the-tree edible, including its seed pods, leaves, bark, nuts, seeds, tubers, roots and flowers. The leaves are often ground into powder and used to make a tea or curry. Also in-depth research studies have concluded that Moringa is a plant abundant in important health nutrients [16].

And finally researchers looking at animal studies spanning 20 journal publications found that Moringa oleifera is effective in treating diabetes [17] [18].

Closing Summary

The healing power of plants lies in their ability to naturally produce substances that threaten their survival. Unlike an animal or human, a plant does not have the luxury to just get up and walk away or fly away to another destination. It has to stay put, and by doing so is forced to create antidotes or substances within it to help it survive. One of the many exciting benefits of exploring science today is discovering the secret healing remedies that lie dormant within plants and how their environment shapes them so that they may thrive and

survive.

This process of adaption is similar to the same way cures in medicine are produced. For example, snakebite venom is produced by injecting a sheep with a tiny amount of venom. This causes the sheep to produce antibodies which are than collected used to make an antivenin. When we eat certain plants that have developed a natural resistance to some type of external threat, we enjoy its benefits of protection.

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Important! Please read before using this book

In some cases, not all parts of a plant may be edible. It depends upon the part of the plant, whether the fruit or berry is ripe or unripe (*some unripe berries are poisonous*) and in some cases the plant will need proper preparation in order to make it edible. Examples include, sun-drying, soaking, roasting or boiling the proper part of the plant.

Bodily Toxicity Thresholds -
Sometimes you may see animals eating the leaves of plants or their fruits and berries. This can be deceiving because over time the animal has developed an immunity to the plant's toxins.. Also it is key to avoid sourcing plants growing in regions that have been sprayed with herbicides or pesticides (*weed killers*), as well as regions the water supply is polluted (*industrial or urban run-off*).

Tips for Hunting for Seaweed

Seaweeds are classified as macroalgae and the majority are edible. Many clusters of seaweed are exposed during low tide (especially during supermoon low tides) with the seaweed culsters growing upon the rocks. You may have already eaten seaweed, but never even knew it. For example, nori in sushi, kombu in miso soup and sashimi with seaweed salad. Because seaweed is a macroalgae, summer is the best season to find lots of it and it is tastiest during spring. Aoid eating seaweed that has washed up on shore, and avoid seaweed that is found near stormwater or

effluent drains. It must be hand cut from rock faces or tidal pools by using sizzors during low tide in water that is not stagnant. Incredibly there are only approximately 14 reported deaths ever linked to eating wild seaweed. These reports state that it was not the seaweed that killed the person, but the bad bacteria that had grown upon the seaweed (epiphytic cyanobacteria contaminants). Hence, this food source often found at low tide posses a significantly reduced risk of getting sick, compared to many forest foods. The rare seaweeds that are reported to be toxic are Caulerpa, Gracilaria and Acanthophora. As of date, no reports exist of anyone eating the most popular seaweeds such as Porphyra (nori), Undaria (wakame) and Laminaria (kombu).

Reference

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Edible Plants, Roots, Berries and Fruits of Australia's Sunshine Coast

Beach Almond (*Terminalia catappa*)
This plant contains protective agents that may be of use in treating the aging of skin and COVID-19



General Description - Grows as high as 30 meters. Tree branches are arranged in tiers. Mature trees display a spreading crown that is vase shaped.

Flower, Leaf and Fruit Description - Flowers measure approximately 1 cm in diameter and are greenish to whitish in color. Flowers grow upon terminal or axillary spikes. Large ovoid glossy dark brown leathery leaves measure between 15 and 25 cm in length and between 10 and 14 cm in width. The leaves can turn to a yellow-brown or pinkish-reddish color due to their abundant levels of violaxanthin, zeaxanthin and lutein which are substances necessary for healthy eyesight. Fruit is drupe shaped measuring between 5 and 7 cm in length and between 3 and 5.5 cm in width. The fruit turns from green to yellow and finally to red when it is ripe and contains a single seed. The edible nuts taste almost like almond..

Beach Bean (*Canavalia rosea*)
This plant contains substances that are hallucinogenic, sedative and anti-depressant in nature

General Description - A hardy plant found inhabiting the upper beaches, cliffs and sand dunes. It is highly salt-tolerant.

Flower, Leaf and Fruit Description - This plant produces bright vivid purplish pink flowers which are 5.1 cm in length. Leaves are stalked, alternate and trifoliolate (bearing 3 leaflets). The stalked leaflets have a somewhat fleshy leaf blade which is broad or rounded between 5 to 14 by 4.5 to 10 cm, with notched or shortly-pointed tips. The flat pods are 10.2 to 15.2 cm in length and become more ridged towards maturity. The large bean pods measure between 8 and 14cm in size. The raw unroasted beans are poisonous causing vomiting. The way to neutralize the poison is to roast the large seeds.

Beach Cherry *(Eugenia reinwardtiana)*
Substances in this plant have been found to be beneficial in treating / preventing depression and / or anxiety

General Description ~ Beach Cherry is a small shrub measuring It grows tropical forests or sand dunes.

Flower, Leaf and Fruit Description ~ Flowers (*usually in axillary positions*) have white petals which are solitary on its leaf axils (*or a few together*). Leaves are shiny and green and elliptic in shape, measuring between 2 and 9 cm in length and 1 to 5 cm in width. The feshy red globular berry may be elliptical measuring about 2 cm in length. The taste of the soft interior is sweet and delicious. The fruit can be ate directly after picking and is also used to flavor candies and drinks. It is also made into a preserve. The fruit is also a rich source of natural antioxidants.

Beard Heath (*Leucopogon parviflorus*) This plant contains substances that give the body physical energy

General Description - Grows as a shrub or small tree reaching between 1 and 5 meters in height. Its branchlets have a hairy feel with fine hairs. Hence the name "*Beard*" in its description.

Flower, Leaf and Fruit Description - Its small star-shaped white five-petaled flowers are furry on the inside. They measure approximately 15 mm in length and produce spikes of between 7 to 13 in number, which occur throughout the year. Its smooth and stiff leaves range from a pale yellow-green to a dark green color. The bottom of the leaf appears paler than the top. The leaves alternate up its stems measuring between 1.1 and 3.5 cm in length by 2.4 and 7.5 mm in width. The upper surface of the leaf may be slightly convex or flat and its lower surface veined. The fruit forms in clusters along each stem. Once the fruit is fully ripe, it is safe to eat. The fruit measures approximately 3mm in diameter, is cream in color and contains a pleasant lemon taste.

Black Apple (*Planchonella australis*) This plant contains substances used to stun fish

General Description ~ Black apple is an evergreen tree with a dense crown, growing up to 30 meters in height. If the plant is cut, it will bleed a milky latex type sap.

Flower, Leaf and Fruit Description ~ Flowers are white with 5 petals and usually axillary and solitary with some displaying a few-flowered clusters. Its thick and leathery leaves are simple in appearance, measuring between 8 and 16 cm in length by 2 to 5 cm in width. The upper leaf surface is usually shiny with the lower leaf surface being pale green with the leaves tapering at the apex and base to a diamond type shape. The purplish or black fruit plums are edible and measure between 20 and 65 mm in length. These plums contain between 2 and 5 brown and shiny seeds which measure about 2 cm in length. They usually ripen from September to November.

Blue Lilly-Pilly (*Syzygium hemilamprum*)

General Description - A rainforest tree, reaching a height of up to 35 m with a canopy diameter of up to 120 cm. Its trunk is buttressed or flanged in appearance with larger trees having flaky, fissured type reddish-brown bark.

Flower, Leaf and Fruit Description - White flowers measure between 2.5 and 5 mm in length. The dark glossy broad lance-shaped or elliptic leaves are generally circular, measuring between 1 and 1.5 mm in length. Flowering occurs between October and November. Glossy leaves are elliptic and broadly lance-shaped and are arranged in opposite pairs, measuring between 39 and 131 mm in length by 18 to 60 mm in width on a petiole measuring between 2 and 10 mm in length. It produces red or red-purple juicy spherical mid-sized shaped edible white fruit measuring between 11 and 17 mm in width that gradually ripen to a blue color.

Blue Quandong (*Elaeocarpus grandis*)
This plant contains substances used to treat stomach ulcers and intestinal worms

General Description ~ Grows as a large tree up to 35m in height with a buttressed trunk and layered branches. The tree likes rainforest and can also be found growing along moist, scrubby watercourses or at altitudes of up to 1,100 meters.

Flower, Leaf and Fruit Description – Flowers are greenish-white, bell-shaped, with five fringed petals, borne in numerous racemes along its branches. Leaves are alternating in an oblong-elliptical shape that consists of shallow, toothed margins (*small teeth on edges)* measuring between 10 and 18cm in length. The shiny blue walnut sized edible fruit is slightly spherical in appearance and measures between 20 to 30 mm in diameter. The fruit tastes best when soft and slightly over-ripe, or it tastes very bitter. Inside the fruit a rough, woody stone is found that has up to five seeds.

Blue Tongue (*Melastoma malabathricum*) ~ This plant contains substances that may to help treat toothache

General Description ~ This shrub likes to grow on the margins of rainforest and in wet areas in sclerophyll forest. It can grow as high as 2 m in height.

Flower, Leaf and Fruit Description ~ The five petal flowers are borne on short terminal cymes measuring between 2 and 8 cm across. Hairy leaves are elliptic to ovate shaped with a rounded base measuring up to 7 cm in length and contain three distinct visible veins running from the leaf base to apex. The leaves measure between 6 and 12 cm in length, and approximately between 2 to 4 cm in width. Fruits measure 8mm long and gradually mature into brown scaly capsulated fruits which burst open upon ripening portraying a dark reddish to purple interior that contains numerous small seeds. The taste of the pulp is sweet and can easily stain the mouth a blue color.

Bopple Nut (*Macadamia tetraphylla*)

General Description - This tree consists of dense foliage that can grow up to 18 meters in height.

Flower, Leaf and Fruit Description – Flowers are white to creamy pink to purple. Some plants flower for 6 months at a time with others flowering constantly throughout the year. Flowers occur on the wood of the trunk, or at ground level. After approximately 215 days after the flowers appear, the nuts start falling off the tree. Tetraphylla means four, therefore it has four leaves more or less equally spaced around each of its leaf nodes. Its leaves are toothed measuring between 7 to 25 cm in length. The tree produces rounded nuts measuring between 2 and 3 cm in diameter. The nuts are edible after cracking open and contain natural sugars that cause the kernels to turn brown when roasted.

Broad Leaved lillly-pilly (*Syzygium hemilamprum*)

General Description – A large tree with a dense canopy. New foliage during spring is copper and pink. Grows up to 5 meters in coastal rainforests. Mature older trees have flaky red-brown bark and buttressed trunks.

Flower and Leaf Description – Flowers are fluffy white in color. Panicles are terminal. Petals are circular and irregular in shape measuring between 1 and 1.5 mm in length. Stamens measure between 0.5 and 2.5 mm in length. Leaves are broad and glossy green. Leaves occur as a dense canopy of broad green and glossy leaves. Produces white globose succulent edible fruit measuring between 8 and 20 mm in diameter.

Brown Pine (*Podocarpus elatus*) This plant contains an above average number of antioxidants and anthocyanins that are used to prevent / treat colon cancer and leukemia

General Description ~ A medium to large evergreen tree growing up to 36 m in height with a trunk diameter measuring up to 1.5 m in width.

Flower, Leaf and Fruit Description ~ Leaves measure between 5 and 15 cm in length (up to 25 cm long on younger trees) and between 6 and 18 mm in width. Seed cones are dark blue-purple in color measuring approximately 2 to 2.5 cm in width and contain a single oval or globose seed measuring approximately 1 cm in diameter. The blueblack and plum-like color seed is firm and round on a swollen fleshy base. Taste is bland with a jelly texture. The seed is borne on the top of the fruit. The fleshy part of the seed cone can be eaten and is often used in condiments.

Brush Cherry (*Syzygium australe*) This plant contains substances proven to help prevent fish spoilage

General Description ~ Can grow as a small-to-medium-sized tree or large shrub, between three and fifteen meters in height. Its dark brown bark is smooth with little relief.

Flower, Leaf and Fruit Description ~ Produces clusters of white or greenish white fragrant cauliflorus flowers which bloom in summer. Leaves are glabrous, low branching which are red and glossy in young plants. They turn dark green upon maturity. Leaves measure between 2 cm to 4 cm in width and 10 cm to 20 cm in length and are pointed. Large white Guava shaped fruit is edible and contains one or two large unarmoured seeds that exist in a slightly fluffy interior when ripe. One can shake the fruit to see if the seeds rattle, indicating the fruit is ready to eat. The taste is juicy with an insipid flavor.

Brush Pepperbush (*Tasmannia insipida*) This plant contains substances that can help slow the aging process with free radical scavenging activity being 4 times higher than blueberries as well as substances that may help treat COVID-19

General Description - A small rainforest shrub that enjoys the cool moist forests, growing between 1 and 3 meters high (*sometimes taller*) with reddish stems.

Flower, Leaf and Fruit Description – The small white flowers occur in umbels from the leaf axils. Its lance-shaped leaves measure between 80 and 200 mm in length. The leaves exude a peppery smell if crushed. The berries occur in clusters and are red, oval-shaped, measuring between 15 and 20 mm in length and darken to deep purple when ripe. The berry color varies from dark purple to whitish. Taste of the fruit is sweet and the seed is hot in taste. The seed is commonly crushed and used as pepper.

Bungwall Fern (*Blechnum indicum species*)

General Description ~ This species consists of long black rhizomes and it likes to grow in swampy enviornments.

Flower, Leaf and Fruit Description – Produces no flowers or fruits. Its fronds measure up to 1m in height. The rhizomes are dug out from the ground, roasted then bruised before eating. The cooked rhizomes are also dried and used in biscuits. The starchy rhizomes can also be eaten raw.

Burdekin Plum (*Pleiogynium timoriense*) This plant has substances proven to treat ovarian and breast cancers

General Description ~ A semi-deciduous rainforest tree with a dense canopy that grows up to 20 m tall with rough bark. Older trees may show buttressed roots. Loves rainforest gullies and can also grow upon rocky hillsides.

Flower, Leaf and Fruit Description ~ The yellowish-green flowers bloom between January and March. Its elliptic to ovate glossy dark green leaves measure between 4 and 10cm long by 2 to 6 cm wide. The fruit shape is of a depressed-obovoid drupe, measuring approximately 20 to 25 mm by 20 to 38 mm. The fruit is large in size and similar in shape to a plum. The color of the inside of the fruit is plum-colored (*dark purple*) and white varieties have been found. The fruit is completely edible when fully ripened. After being picked, the fruit must be left to sit for a few days in order to soften it enough to eat.

Cherry Ballart (*Exocarpos cupressiformis*) This plant has substances that may slow the aging process as well as treat cellulitis and ovarian cancer

General Description ~ Tree grows between 3 and 8 m in height with a pyramidal appearance.

Flower, Leaf and Fruit Description ~ Flowers are arranged in clusters on short spikes between 3 and 6 mm in length. Stems are green with a drooping appearance. Green or bronzy color leaves are scale-like and triangular in appearance measuring between 2 and 3 mm in length on new growth. Unripe fruit is inedible consisting of a hard, globular, greenish nut, measuring between 4 and 6mm in length that contains a seed which is located on the top of its stalk. As fruit matures, the stalk will swell to between 5mm and 6mm in width and then turn yellow or red, forming the edible "cherry" fruit.

Coastal Banksia *(Banksia integrifolia)*

General Description ~ This tree is one of the best nectar-producing plants in the world, growing up to 25 meters in height.

Flower, Leaf and Fruit Description ~ Pale yellow to yellow flowers consist of several hundred flowers that are densely packed together in a spiral fashion and wrapped around a woody axis that is roughly cylindrical in appearance. It measures between 10 and 12 centimeters in height and five centimeters in width. The leaves are dark green on the upper surface with white undersides. The unusual seed pods are released spontaneously during late summer upon reaching maturity. Produces no fruit or berries. The flower's nectar is used as a syrup for colds or sore throats.

Cockspur Thorn (*Maclura cochinchinensis*)

This plant contains a powerful natural substance that protects the skin from UV rays as well as substances that have anti-diabetic effects and may help prevent tooth decay

General Description - Grows as a vine or straggling spiny shrub in tropical forest. The plant has an above average lifespan, growing hundreds of years.

Flower, Leaf and Fruit Description – Flowers measure between 6 and 8 mm in diameter and are sessile shaped (*clasped to the stem*). The flower stalk measures between 2 and 6 mm in length. Its leaves are oblong to elliptic in shape measuring between 3 to 8 cm in length and have a short acute apex. It is the perfect anti-aging plant in that the freshly plucked leaves from young plants can be ate raw or made into a tea. Also produces globular, yellow or orange fruits that taste sweet and juicy.

Corduroy Tamarind (*Mischarytera lautereriana)*
This plant contains substances that may inhibit tooth decay

General Description – Enjoys growing in moist well-drained soil in sunny regions in tropical rainforests to a height of 10 meters or more.

Flower, Leaf and Fruit Description – Flowers measure approximately 1.5 to 2 mm. Calyx lobes and clawed petals are approximately 1 mm in length. Anther filaments are hairy measuring approximately 2.5 mm in length. Leaves are opposite with no true terminal leaf and are narrow elliptic oblong shaped measuring between 6 and 15 cm in length with a bluntly pointed apex and narrow base. Margins are wavy with few teeth near apex. Produces reddish three-lobed fruits that contain pale yellow pulp. The edible pulp contains anice pleasant tangy flavor.

Currant Bush (*Carissa ovata*)

This is a powerful healing plant with multiple medicinal uses and contains substances that may neutralize snakebite

General Description ~ Found in multiple regions; from mangrove fringes to scrub and arid areas.

Flower, Leaf and Fruit Description ~ The flowers are white with a perfume type fragrance that consist of 5 petals that measure approximately 0.6cm in diameter, growing in upright clusters from the upper leaf axils. The shiny green leaves are opposite, egg-shaped or can be rounded in appearance. May also be pointed or blunt and have a leathery, stiffy appearance from the branch. The leaves measure between 1 and 3cm by 0.5 to 1.5cm. The berries are egg-shaped and black in appearance, measuring between 1 and 1.5cm in length and taste similar to dates.

Davidson's Plum (*Davidsionia pruriens*)

This plant contains substances that may help slow down the aging process due to its abundance of natural antioxidants

General Description ~ This slender small tree has a spreading canopy with smooth leaves and grows approximately 5 meters in height. Can be found in clay or sandy loam type soils.

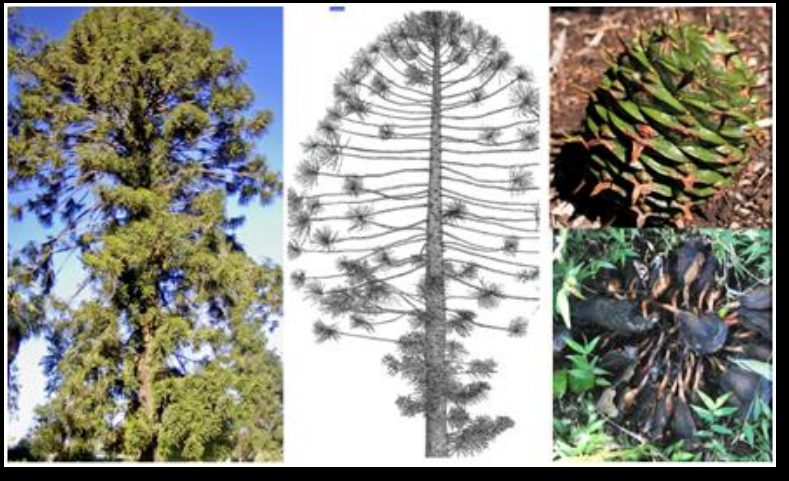
Flower, Leaf and Fruit Description ~ The tree produces a mass of flower buds which gradually change over a period of several months. The reddish-brown flowers occur in pendulous clusters during spring. Leaves are divided into leaflets (*pinnate*) measuring up to 800 mm in length. Produces large purpled egg-shaped crimson-red fruit that resemble plums that grow in large clusters directly from its trunk or branches. The taste of the fruit is tangy and is used to make wine or a tasty jam.

Edible Spike (*Eleocharis dulcis*)
This plant contains substances that fight free radicals and lung cancer

General Description ~ A grass type species with a sedge-like appearance that likes to grow in water environments. The cylindrical stems grow up to one meter in height.

Flower, Leaf and Fruit Description – Produces no fruits or berries. The underground tubers are dug up and ate raw or cooked. They can also be ground into flour and have a sweet taste. Its small rounded corms (*shown in the picture*) contain crisp, white fleshy material that is able to be ate raw when they turn brown. They can also be slightly boiled, grilled, pickled or tinned. In some cases, the plant's surface may contain intestinal worms and if eaten uncooked, may transmit fasciolopsiasi.

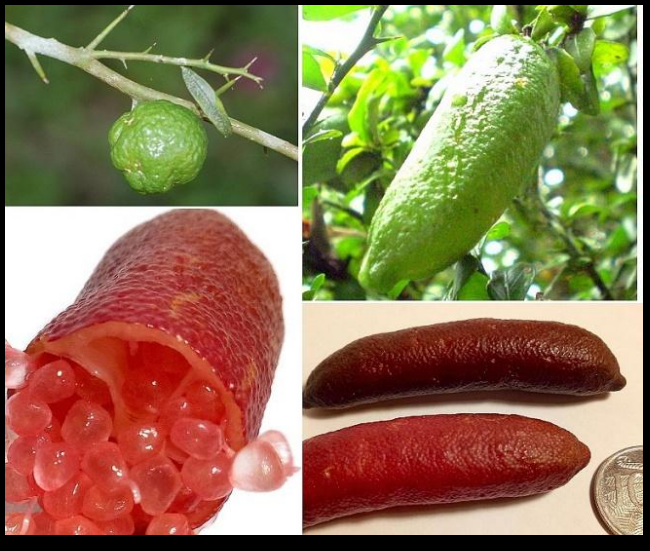
False monkey puzzle tree *(Araucaria bidwillii)*
This plant contains substances that may help improve blood flow to the brain



General Description – Grows up to 50 m tall and 150 cm in width. Shape is pyramidal in younger trees than dome-shaped as tree reaches maturity.

Flower and Leaf Description – Flowers occur during spring at branch-ends on the upper branches in dense clusters and consist of many spirally arranged stamens.
Seed cones occur between December and March (*approximately 17 months after pollination*). Dark-green glossy leaves measure between 0.7 and 2.8 cm in length. Cones are dark-green, ovoid-subglobose in appearance, measuring between 30 and 22 cm and can be heavy. Inside the cones are 50 to 100 seeds measuring approximately 2.5 cm in length encased in a thin and tough, buff-colored integument. The seeds inside the cones are edible.

Finger Lime (*Citrus australis, australasic)* This plant contains substances that help fight E. coli and S. aureus



General Description ~ Grows as a thorny understory shrub or small tree in subtropical rainforest. The tree measures approximately between 2 and 7 m in height.

Flower, Leaf and Fruit Description – Flowers consist of white petals measuring between 6 and 9 mm in length. Leaves measure between 1 and 6 cm in length and 3 to 25 mm in width and are glabrous with notched tips with rounded-toothed or scalloped edges towards their apex. Fruit is cylindrical in shape, measuring between 4cm and 8 cm in length and may be slightly curved. Fruit occurs in various colors including green and pink.

Appendix

Note - Some plants listed may not have detailed descriptions because not enough scientific information was available for that species.

Beach Almond (Terminalia catappa)

Season - Flowers begin late winter into midsummer. Fruits usually are harvested March through September.

Contains layered whorls of branches. Leaves are large and turn to bright red. Fruit is almond shaped and hard to open and contains a kernel inside similar to an almond. The seed within the fruit is completely edible when fully ripe, and tastes like almond.

Medicinal Uses

Beach Almond has been found to contain substances within it that help treat ulcers (1) and methanolic extracts of Beach Almond tested upon human fibroblasts were found to exhibit potent antioxidant and protective properties that help protect against oxidative stress-induced skin aging (2). Also substances found within this plant have been found to be of benefit for the treatment of COVID-19 (3). The seeds contain palmitic, linoleic and oleic acids and are rich in sucrose with trace amounts of glucose and fructose (4) and extracts of the leaves were found to help treat oral cancer (5).

The red variety of the outer skin of the fruit of is rich in protein and the yellow variety has a high content of carbohydrate and ash, with vitamin C levels diminishing the longer the fruit ripens (6). It also contains substances that exhibit antimicrobial, antioxidant, hepatoprotective, anti-inflammatory, antidiabetic and anticancer properties (7). Leaf extracts have been proven to behave as a natural antiseptic, (8) to prevent subsequent diabetic complications and for treating hyperglycaemia (9) and liver cancer (10). Substances found within this plant also exhibit strong antiinflammatory activity (11) as well as decrease the deterioration of joint tissue in patients diagnosed with rheumatoid arthritis (13).

Beach Bean (Canavalia rosea)

Season - Flowers all seasons except during early Summer

Found throughout the world's coastal tropical regions. It is a flower plant commonly called seaside jack-bean, coastal jack-bean, beach bean, bay bean and MacKenzie bean. It grows in a trailing type formation as a herbaceous vine forming mats of foliage. Its stems can reach more than 6 m in length and 2.5 cm in width. Its leaves are made up of three leaflets 5.1 to 7.6 cm in width, which will fold up when exposed to harsh sunlight. Its seeds are very buoyant, allowing them to be easily distributed by ocean currents.

The flowers can be ate or used as a flavouring and its young pods can be cleaned, boiled in water and than eaten. Roasted seeds are used as a substitute for coffee. The young boiled seeds are high in protein and can be cooked and are said to make a good porridge. Canavalia rosea contains the acyclic guanidine alkaloid canarosine, as well as epi-inositol 6-O-methyl ether, rutin, beta-sitosterol, stigmasterol and daucosterol [14].

Medicinal Uses

Canavalia seeds have been shown to act as an anti-inflammatory [15].

Folklore Uses

Its root acts as a diuretic and has a bitter taste. Canavalia may also act as an aphrodisiac, an anti-depressant, a hallucinogen and a sedative. The root can be steeped in vinegar for a number of days and used as a mouth rinse. Seed extracts are used as a purgative. Juice from the petioles are applied to puncture wounds resulting from a thorn, spear injury or other sharp objects to stop the bleeding.

Decoctions of its leaves are used to treat rheumatism. A leaf paste is used for boils, and if the leaves are dried, they are used as an entheogen, which is used in some sacred rituals. The seeds can also be ingested or smoked with dried leaves in order to produce a pleasant narcotic effect.

Beach Cherry (Eugenia reinwardtiana)

Season ~ Flowers from Spring to Summer

Grows as a small shrub producing bright red fruit that ripens between August and March. It is also known as Cedar Bay cherry, Australian Beach, Mountain Stopper, Beach Cherry and Nioi (Hawaii). It grows easily from fresh seeds in tropical regions and is commonly found around Cedar Bay National Park in northern Australia. It can also be found as a shrub in rocky areas. Its edible fruit was popular with hippies in that region during the 1970's.

Leaves are lanceolate to obovate and vary from 2 to 9 cm long and 1 to 5 cm in width with distinct lateral veins. Flowers are solitary in the leaf axils. Petals are white with numerous stamens. Petiole measures between 0.1 and 0.6 cm in length. Fruit is a fleshy red berry, usually globular but may be elliptical about 2 cm in length. Fruits appear green at first and when ripe turn a bright orange-red color. The fruit is sweet and succulent.

The following essential oils have been found in its leaves: caryophyllene (0.7-11%), pinene (10-26%), limonene (1-15%), humulene (0.9-16%) and bicyclogermacrene (1-23%). The species growing on sand dunes near Lockerbie Queensland was found to contain the

following essential oils rich in terpenes: humulene (1-17%), pinene (tr -8.5%) and caryophyllene (12-27%) [16].

Caryophyllene

A study found that Caryophyllene was responsible for reducing anxiety and depression in studies conducted on animals [17]. Caryophyllene has also been found to produce multiple behavioral changes relevant to anxiety and depression in mice [18] [18a].

Additional Uses

Eugenia reinwardtiana was determined to be useful for erosion control and revegetation in contaminated mining sites where the soil is contaminated with metals [18].

Further Reading

Antidepressant-like effects of β-caryophyllene on restraint plus stress-induced depression. Eun-Sang Hwang et al. Feb 2020.

The anxiolytic-like effect of an essential oil derived from Spiranthera odoratissima A. St. Hil. leaves and its major component, β-caryophyllene, in male mice. Pablinny Moreira Galdino et al. Apr 2012.

The anxiolytic-like effect of an essential oil derived from Spiranthera odoratissima A. St. Hil. leaves and its major component, β-caryophyllene, in male mice. Pablinny Moreira Galdino et al. Apr 2012.

α-Pinene isolated from Schinus terebinthifolius Raddi (Anacardiaceae) induces apoptosis and confers antimetastatic protection in a melanoma model. Alisson L Matsuo et al. Jul 2011.

Beard Heath (Leucopogon parviflorus)

Season - Flowers during Winter and Spring

The name Leucopogon comes from the Greek word Leuco, which means white and pogon "*beard*". It is a coastal growing shrub found growing on sand dunes and heaths. It grows in all of the Australian states except for the Northern Territory and the ACT.

Beard Heath is a hardy plant, growing in numerous conditions; from sandy dunes to rocky cliff faces, to sheltered or exposed weather environments. It loves sandy soils that have sufficient shelter from the outdoor elements adoring neutral pH type soils. It can also be found in low-open forests behind beaches, often surrounded by other shrubs such as the Acacia Sophorae.

The edible parts of this plant species have been shown to contain antioxidants and polyphenols and that the fatty acid composition in the plant consisted of oleic, palmitic and linoleic acids. Also the leaves of the plant contain an abundance of reducing sugars [20]. Reducing sugars are made by a chemical reaction that creates a type of sugar that provides energy to the body. These sugars are glyceraldehydes, lactose, arabinose glucose, fructose and maltose.

Medicinal Uses

This plant exhibits good antibacterial activity against numerous types of bacteria, probably due to its abundance of phenolics and flavonoids [20].

In-depth details

The plant's size and appearance vary depending upon the age of the plant. It can be seen growing as a medium sized shrub to a small tree, growing between 1 and 5 meters in height, depending upon its age. The finer branches are "*soft and hairy*". The hairs allow the plant to be drought tolerant. As the shrub ages, its trunk becomes a deep dark brown color that has fine grooves and cracks. The flowers release a powerful sweet fragrance growing in thick "spikes" attached to the stem. The plant is very drought tolerant and will re-grow after a bushfire and will also grow from wood cuttings. It is commonly used in floral arrangements by florists. It takes up to 18 months to fully germinate from seed and taking at least 10 years to reach a decent size. It has a very long lifespan of up to 100 years depending on conditions.

Black Apple (Planchonella Australis)

Season – Flowers bloom Spring to Summer

Black Apple is a medium to tall rainforest tree found in Queensland and New South Wales. It is also called wild plum, yellow buttonwood, black apple, black plum and yellow bulletwood.

Medicinal Uses

Black Apple has been tested for its antibacterial activity against numerous types of bacteria [21]. Also the first Australians used Black Apple to treat sore throats and as a natural antiseptic [21] and its antibacterial properties have been verified against an extensive panel of disease causing bacteria [21].

During colonial times, the apple was made into preserves [22] and even today you can buy Black Apple preserves at some Farmer's Markets.

Uses

Fruits are used to make a jelly. The fruit is prized by small rodents and some fruits may contain maggots. Indigenous Australians would often eat the seeds. Besides its fish stunning uses, its high quality timber is harvested for local use and the tree is used as a food source. Colonialists originally harvested the tree for its timber because its attractively yellow-patterned wood is very hard and suitable for making rulers [23].

Blue Quandong (Elaeocarpus grandis)

Season - Flowers from Autumn to Winter

Elaeocarpus grandis is sometimes called blue quandong, blue fig or silver quandong. This plant can be found as far north as Cooktown in Queensland to as far south as the Nambucca River in New South Wales.

Grows in sub-tropical rainforest and along moist, scrubby watercourses and has also been found growing in

the Northern Territory. As the tree ages, the crown becomes sparse and it grows bright red leaves.

Leaves alternate and are one-foliolate, oblong-elliptical, with shallow toothed margins; 10 to 18cm in length with dark green blades. Fruit is a bright blue, ovoid drupe shape measuring between 2 and 3 cm in width with a thin layer of edible, green flesh. Fruit contains up to five seeds that are encased in a hard, pitted stone that is ripe between September to November.

Uses

The tree has been used for construction, furniture and racing sculls and oars. The interior hard parts of the beautiful, often blue berries, were used to make necklaces. The seeds of the fruits are used for necklaces and earrings. Fruits can be made into an edible paste. Its fruit is prized by birds, especially the brushturkey, southern cassowary and flying foxes. Indigenous Australians ate the fruit raw or would bury the unripe fruits in sand for up to four days to make the fruit taste sweeter. Early settlers also used the fruit for pies, jams and pickles.

Medicinal Uses

This species exhibits very potent analgesic effects (*pain relief*). A research study looked at extracts made from the aerial parts of the plant and found the following substances: grandisine, kaempferol, quercetin, methoxy benzaldehyde, methyl gallate and heterophyllin. The study concluded that quercetin and **kaempferol** had strong binding effects and that this may be the reason it also can act as a natural anti-ulcer remedy [24a].

Kaempferol

Kaempferol is a flavonoid and phytoestrogen proven to protect against oxidative stress and inflammatory age-related chronic disorders [25].

Blue Tongue (Melastoma malabathricum)

Season - Flowers from Spring into Summer

This shrub is found in tropical and sub-tropical forests of South-east Asia, India and Australia. The appearance of this fast growing shrub is very similar in appearance to Tibouchina, as it contains dark purple/pink flowers with three veined leaves. Blue Tongue is also called blue tongue or native lassiandra. Blue Tongue contains substances that may help prevent toothache [27].A similar species, Melastoma malabathricum contains substances in the barks, leaves, shoots, roots and seeds, that treat toothache, stomachache, diarrhea, dysentery, hemorrhoids, cuts and wounds.

Scientific research also has found that parts of Blue Tongue can be found to treat anti-inflammatory conditions, heal wounds, relieve diarrhea and dysentery, treat hemorrhoids and exhibit antioxidant activity [28].

Blue Tongue has received a lot of attention from scientists due to its hyperaccumulation of metals [29]. The plant rapidly absorbs arsenic, lead, uranium, magnesium, silicon, calcium and thorium [30] [31].

Blue Tongue has also been found to absorb the rare earth elements neodymium (Nd), yttrium (Y) and lanthanum (La), with most of the rare earths accumulating in the leaves and the lowest levels accumulating in the roots

followed by the shoots [32]. This may account for the deep color of the flower.

Relief from Dental Cavities

An extract made from the leaves of Blue Tongue was found to exhibit good bactericidal activity (*inhibiting the biofilm that forms on teeth*) in a dose-dependent manner against the tooth causing bacteria S. mutans by disrupting the cell membrane of the cavity causing bacteria [33].

This plant also contains saponins. Hence it may also make a great fish stunning plant, although further research is necessary to confirm this hypothesis.

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Bopple Nut (Macadamia tetraphylla)

Season - Flowers from early Spring to early Summer

Bopple Nut grows as a tree and is native to southern Queensland and Northern New South Wales. It is also commonly called bauple nut, prickly macadamia, macadamia nut, Queensland nut, rough-shelled bush nut or rough-shelled Queensland nut. Macadamia nuts have become an important export crop for the Mexican and

Hawaiian markets, with Hawaii being the largest exporter. Macadamia nuts consist of about 86% monounsaturated fatty acids. Monounsaturated fatty acids have been shown to reduce blood cholesterol levels (*Moreno-Perez et al., 2011*). The taste of a Macadamia Nut is a subtle butter-like flavor, with a creamy texture.

Broad Leaved or Blue Lilly-Pilly (Syzygium hemilamprum)

Season - Flowering occurs from October to November

Blue Lilly-Pilly is a species of flowering plant in the Myrtaceae family. It is found growing in New South Wales, Queensland and the Northern Territory and can also be found growing as far north as Cape York Peninsula, which is the far north east tip of Australia.

It is primarily a rainforest tree commonly found growing on sand, near the ocean or in littoral rainforests. It can also be found growing in red brown volcanic soils, such as the Mount Warning caldera. Its fruit is used to make jellies or jams.

Brown Pine (Podocarpus elatus)

Season - Flowers begin during Spring with the plums ripening from March to July

Brown pine is also called plum pine or the Illawarra plum. It grows along Queenland's east coast. It is a large tree, widely used for its high quality timber. The timber was used to make boat planking, lining, furniture, joinery and piles in

salt water [34]. The fruit is used to make a jelly that is rich and sweet tasting.

Brown pine contains an above average number of anthocyanin-rich phenolics which have antioxidant levels higher than most fruits. A research study looked at the anti-proliferative activity of Illawarra plum and its ability to successfully kill colorectal cancer cells in mice. The researchers in the study concluded that an extract of Illawarra plum was able to successfully kill colon cancer cells and that the active ingredients may be of useful benefit in chemotherapy [35]. The plant has also been found to contain the steroid **Podecdysone C** [36] and Podocarpus elatus has been found to be of use in treating various forms of cancer [37].

Podecdysone C

Podecdysone C has been found to be similar in structure to the hormones that promotes moulting in insects. This may give it potential as a natural insecticide.

Brush Cherry (Syzygium australe)

Season – Flowers bloom Summer to Autumn

This small rainforest tree adores growing in creeks and scrubs. Brush Cherry can be found growing along the coastal regions in Queensland and as far south as Batemans Bay, New South Wales. The tree is used by the Coffs Harbour City Council as the City's emblem.

The tree can be easily confused with magenta cherry or the blue lilly pilly. However, the color of Brush Cherry's trunk is paler in color. The berries are used to make a tasty jam and wine. The fruits are edible and can be cooked or used to make jellies and jams.

Medicinal Uses

In a research study aqueous or methanolic leaf extracts of Brush Cherry displayed excellent activity against killing bad types of bacterial fungi. The researchers in the study concluded that leaf extracts of Brush Cherry are a promising candidate for the development of medicines used to treat skin diseases caused by specific types of fungus and similar bacteria [38]. In another study, fruit extracts of Brush Cherry were found to inhibit bacterial growth indicating its potential as a natural fish or seafood preservative [39]. Hence if this plant is growing nearby where you are fishing, placing some of its leaves in the water may help keep the fish fresher longer.!!!

Another research study found that extracts of Brush Cherry inhibited the bacterial growth of Proteus mirabilis [40]. Proteus mirabilis is a Gram-negative bacteria that is a pathogen of the human urinary tract. It is commonly found in people undergoing long-term catheterization.

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Brush Pepperbush (Tasmannia insipida)

Season - Flowers from Spring into Summer

Brush Pepperbrush likes to grow along the coastline of eastern Australia. It can also be found growing along the southern coast of New South Wales.

Medicinal Uses

This plant is currently being explored for its possible treatment against COVID-19 [41] [42].

A research study found that a leaf extract of Brush Pepperbush, which is a sub-species related to Tasmannia insipida, significantly reduced the roughness of stretch marks on women's skin [43].

Further research revealed that Brush Pepperbush contains an abundance of antioxidants and exhibits the ability to exhibit free radical scavenging activity that is four times stronger than blueberries. Brush Pepperbrush also contains an abundance of terpenes (*Polygoidal*). It is also high in anthrocyanins and anthrocyanin glycosides [44] and has been shown to exhibit high levels of Phenolics [45].

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Bungwall Fern (Blechnum indicum)

Season - This species produces no flowers

Burdekin Plum (Pleiogynium timoriense)

Season – Flowers from Spring into Summer

The Burdekin plum tree is also called, tulip plum and sweet plum can also be found growing in Malesia and the Pacific Islands. It is commonly found growing north from Gympie to as far north as the Cook Islands, the Philippines and Indonesia. In Egypt it is cultivated as an ornamental plant.

The tree likes rainforest and monsoon forest at elevations from sea level to approximately 1,000 m. It is very often found growing along water courses. In Queensland it is usually found in dry rainforest, subcoastal riverine and littoral rainforest.

It sprouts fruit between spring and summer. The fruits are prized by great bowerbirds and cassowaries. The Burdekin plum contains a thin astringent, sour layer after falling from the tree or being picked. Thus it must be left for a few days in order for the taste to become palatable. The taste of the fruit is tart, with the pale greenish varieties being less tart to the taste. The plum contains above average levels of potassium and moisture [46] and is also a good source of calcium, providing between 25 and 40 per cent of RDI [47].

Indigenous Australians would bury the fruit underground in order to allow it to ripen. Its fruits are used to make a jelly or can be cooked or made into preserves.

Medicinal Uses

A research study examined Bark extracts of Burdekin Plum for their ability to inhibit cancerous tumor cell growth. During the plant's phytochemical screening, the fruit displayed cytotoxic effects against various kinds of cancer, including breast, laryngeal and carcinomas forms of cancer. Its seeds exhibit antioxidant, anti-inflammatory, hepato-renal protective and analgesic properties. The part in the fruit formed from the wall of the ripened ovary (*pericarp*) was also found to contain the phenolics, catechin, quercetin and rutin. The researchers in the study concluded that

Burdekin Plum contains **Limonene** as the major oil (64.51 %). This was followed by Terpinene (5.60%) and Copaene and **Caryophyllene** percentage (4.74 %). Further analysis of the seeds showed it killed human ovarian cancer cells. The researchers in the study concluded that the components present in Burdekin Plum may act as a new flavoring agent for food or be of use in pharmaceutical products and that it can also be used in the treatment of different types of human cancers [48] [49].

Caryophyllene

Caryophyllene is used to help relieve pain, anxiety, reduce cholesterol, prevent Osteoporosis and to treat seizures [50].

Limone

Since 1995 Limone has been used as a fragrance and flavor additive in cosmetic and cleaning products. It has also been added to food, pharmaceuticals and beverages. It is also used as a solvent. Limone exhibits numerous medicinal benefits and exhibits many antioxidants.

Limonene is easily metabolized into **perillyl alcohol** which is a subject of numerous cancer treatment and prevention studies *(Thomas Prates Ong et al., 2012)* [51].

Medicinal Uses

Numerous studies have suggested Limone as an excellent dietary source for preventing cancer *(Aggarwal and Shishodia, 2006)*. Limone also exhibits antidepressant activity *(Komiya et al., 2006)*, acts as an anti-inflammatory in people diagnosed with osteoarthritis *(Rufino et al., 2015)* and helps treat asthma *(Hirota et al., 2010, 2012)*. Limone has also found uses in chemoprevention *(Crowell and Gould, 1994)*.

A phase I clinical trial study [50a] showed positive effects in a patient that had breast cancer, and in three

patients who were diagnosed with colorectal cancer when Limone was included in their treatment program *(Vigushin et al., 1998)*.

Perillyl alcohol

Perillyl alcohol is found in specific species of plants including citrus fruits and lavender. Perillyl alcohol is commonly taken for people diagnosed with various forms of cancer, including prostate, lung, breast, colon, pancreatic and brain cancer. Perillyl alcohol is also used in situations when cancers don't respond well to conventional treatments.

Cherry Ballart (Exocarpos cupressiformis)

Season - Flowers year round, but flowers generally occur Spring to Autumn

Cherry Ballart is also called, native cherry or cypress cherry. The plant grows from Queensland to as far south as Victoria, to the leeward fringes of the Great Dividing Range and into Tasmania. It has also been spotted growing on granite outcrops in eastern Australia. Cherry Ballart is part of the sandalwood species, therefore it resembles a cypress tree, yet grows as a large shrub or small tree.

The plant likes to grow in rainforest that has fertile soil and can also be found growing in shallow soils.

The seed-like fruit (*which is actually a nut containing the seed, like an acorn*) can be found on the outside of the fleshy false "*fruit*". This is where its original name Exocarpos came from, which means in Latin "*outside fruit*".

Uses

The wood of the plant has been used to make spear-throwers or bullroarers. Bullroarers were used by the Indigenous Aboriginals in initiation ceremonies as well as in burials to ward off evil spirits. Some indigenous cultures state that the sound of a Bullroarer is represented by the sound of the Rainbow Serpent.

Other uses of the wood were for making gun-stocks, furniture and tool handles. The wood is also suitable for turning and carving and for producing decorative and ornamental pieces of art-work in the Arts and Crafts Industry.

Medicinal Uses

Extracts made from the leaves of Cherry Ballart have been found to contain an abundance of antioxidants as well as the substances **sideroxylin**, ellagic acid, eucalyptin, quercetin and catechin [55].

Sideroxylin

Sideroxylin is a substance that has been used to treat ovarian cancer [56]. Cherry Ballart also contains **ximenynic acid** in its seed oil [52].

Ximenynic acid

Ximenynic ethyl ester is a semi-synthetic derivative of natural ximenynic acid and was patented during the year 1992 for treating hair loss, erectile dysfunction and **cellulitis**. Studies by Bombardelli et al. (1994) demonstrated that a topical application of ximenynic acid ester increased capillary density and the microvascular blood flow of the hair of patients without any adverse side effects. It also had other remarkable benefits. Commercial patents claim that formulas in skin care products that contain ximenynic acid improve lipid metabolism as well as skin health when it is

included in cosmetic formulations [53]. The drawback to Ximenynic acid is that it is poorly absorbed, making it hard to translate its medicinal benefits into effective treatments. However further research may solve this drawback.

Ximenynic acid has also been claimed to exhibit anti-aging properties. A commercial product containing ximenynic acid that was tested upon women aged between 19 and 34 years suffering from venous stasis and thigh cellulite exhibited positive results from application of the commercial product [54].

Cellulitis

Cellulitis is a bacterial skin infection causing swelling, redness and pain on the skin. If it's not treated, it will end up spreading eventually causing serious health problems.

Coastal Banksia (Banksia integrifolia)

Season ~ Flowers during Spring, Autumn And Winter

The tree can be found growing along the entire eastern coast of Australia, from as far south as Geelong, Victoria to as far north as Proserpine, Queensland. It is a very versatile and hardy tree growing upon sand, clay, acid and even alkaline soils and is very resilient to the outdoor elements, showing excellent resistance to salt and wind spray. Hence it is used as a very low-maintenance garden tree. The tree can also be found up to 200 kilometres (125 mi) inland occurring in the Blue Mountains at high altitudes (*up to approximately*

1500 meters.

The tree contains a single stout trunk, which may be gnarled and twisted with rough grey bark. Coastal Banksia is used as a floral emblem by the cities of Redcliffe and Logan in Queensland. During the year 2000, the tree was featured on an Australian postage stamp.

Each single stemmed flower actually is made up of several small hundred flowers that are packed densely and arranged in a spiral formation and wrapped around a woody axis that is roughly cylindrical in appearance. Some flowers may show greenish or pinkish buds.

Due to the large amount of nectar it produces, the flowers attract numerous insects that in turn are ate by birds and arboreal marsupials. The Noongar mythological narratives contain stories of the association of parrots (*Psittaciformes*) and possums eating the nectar of the Coastal Banksia

Its flowers have a very short life span and produce nectar for approximately four to twelve days during its short nectar producing span. Much of this nectar is produced during the night and the early morning hours. Hence the flowers are a favorate food for the grey-headed flying fox and the common blossom bat. Nectar is best collected in the early morning before the birds eat it. The seeds can be removed from the cones by placing them in an oven at 120C for about a half hour.

Because the nectar peaks during the season of autumn every year, the plant is prized by beekeepers because it produces dark amber-coloured honey during the seasons of autumn and winter when other plant species are producing little flowers during these seasons.

The Indigenous Australians would collect nectar from the flower by stroking its flower spikes and then licking their hands. Another method used to gather the nectar was to steep the flower spikes in a coolamon overnight. A

coolamon is a traditional Aboriginal carrying vessel with curved sides.

Additional Uses

The flower spikes were also used as hairbrushes

Cockspur Thorn (Maclura cochinchinensis)

Season - This vine rarely flowers

Medicinal Uses

An extract of Cockspur Thorn administered to mice for 28 days (1,000 mg/kg) caused the mice to display significantly reduced values in their fasting blood glucose levels, making it a great alternative therapy for diabetes [57].

Tooth Decay Prevention

An extract of the bark of Cockspur Thorn has been shown to exhibit free radical scavenging ability as well as antibacterial activity against the bacterias responsible for causing tooth decay. These are Staphylococcus aureus and Bacillus cereus. Also a chloroform extract of Cockspur Thorn exhibited antibacterial activity against Bacillus subtilis, S. aureus and Staphylococcus epidermidis [58]. One of the more prominent bioactive compounds researchers discovered in Cockspur Thorn was the flavonol **Morin**, which not only showed many pharmacological activities, but also exhibited antioxidant properties, which has been shown to reduce lipid peroxidation [58].

Morin

A research study looking at Morin's ability to protect skin cells against UV rays found that cell viability was above 100% when the concentration of Morin was at 20 and 50 μM and that cell survival was over 100% after the Morin treatment. The researchers in the study concluded that Morin increases antioxidant enzymes in response to oxidative stress from UV and heat, which are the most common factors that contribute to damaged skin cells. The Morin assists in removing ROS, a byproduct of oxygen metabolism that is partly responsible for the aging process. The authors in the study concluded that using Morin can protect skin cells against oxidization and UV in cosmetic products [59].

Soga-batik

The heartwood of larger roots or the stem of Cockspur Thorn has been used to dye textiles the color yellow. The dye can also be used to color mattings. To create a dye, the wood is chopped into pieces ranging in size from between 3 and 5 cm. Next it is mixed with the chopped bark of Peltophorum pterocarpum and Ceriops tagal (*usually a ratio of 1:2:4, however other proportions may be used, depending upon the desired color*). Next this mixture is placed into a pan and covered with water. It is than boiled until thickened to the right consistency, which can take as long as 8 hours. After the mixture has cooled, it is filtered for about 2 hours and the resulting liquid is transferred to another pan which is used for dyeing. Next the fabric is soaked in the warm infusion until the color is completely uniform in appearance. Next the fabric is dried out of the sun in shade. This soaking and drying process is repeated up to 20 times for the high quality textile known as '*soga-batik*'.

Folklore Uses

The wood has been used to treat fevers and a root decoction has been used to alleviate coughing and as a natural anti-diabetic.

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Cocky Apple (Planchonia careya)

This fish stunning plant is commonly found in eucalypt forests and is briefly deciduous during the dry season.

Uses

The bark is fibrous and is spun to make fishing nets or a string for belts. The cambium layer inside the bark of the tree, including its leaves, were used as medicines for treating diarrhea, skin diseases and the outer bark and its roots are

used to stun fish [59a]. The seeds are found within a fibrous, cheesy flesh. The fruit displays multiple healing uses. Six noted antibacterial substances are in its leaves and leaf extracts are being researched for their use as a topical wound-healing remedy [59b]. The plant was also found to contain the substance gallocatechin, which is a substance used to treat malaria and fungal infections [59b].

Corduroy Tamarind (Mischarytera lautereriana)

Season - Flowers during Spring

Medicinal Uses

In a research study, the leaves of Corduroy Tamarind were dried in a Sunbeam food dehydrator, than ground into a coarse powder. The leaves were then made into an extract and then studied for their ability to inhibit the spread of gram-positive and gram-negative bacteria. The researchers found that the leaf extracts were good inhibitors of the growth of the gram-negative and gram-positive bacteria and that they also inhibited the growth of the bacterias S. aureus, P. mirabilis and S. pyogenes.

Additional investigation also revealed that the leaf extracts killed the bacterias K. pneumoniae (*which causes pneumonia*) and B. cereus, exhibiting significant growth inhibition within only an hour of exposure to the extracts. This makes it a powerful extract for killing certain kinds of bacteria that harm the body. The extracts were determined to be nontoxic in nature (*as the plant is edible*). The researchers in the study came to the conclusion that Corduroy Tamarind has potential use in the development of new antibiotic chemotherapies [60].

Did you know?

Resveratrol may have the potential to reduce the course of COVID-19 and reduce its complications and morbidity risk
(105a) (105b) (105c) (105d) (105e) (105f) (105g) (105h) (105i)

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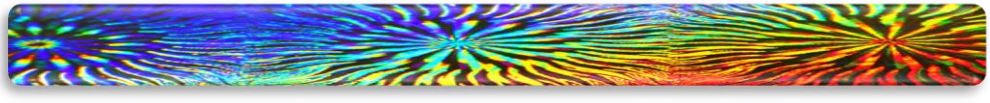

Substances proven to treat skin cancer when applied topically

As this book was going to print, I discovered some very good information regarding natural substances found in plants proven to help reduce the size of melanomas came into being. Therefore I have included a very brief summary of the studies in the next few pages. **Please note** many of these substances are highly concentrated (*like essential oils*) and are usually added to creams or lotions. The safest method is to mix the substance with a carrier oil such as almond, coconut, jojoba or olive oils. Common amounts are a 2:100 to 5:100 dilution, which is than tested upon the skin to test for any irritation. Some carrier oils are more compatible and work better with certain substances, therefore you need to research the best carrier oil to use with the substances listed below.

A reserach study found that applying **caffeic acid** to the skin of mice that had been exposed to intense UV activity expressed a reduction in the spread and size of their skin tumors [(1)].

The polyphenol **EGCG**, found in abundance in green tea, when spread on human skin, was found to reduce the effects of UV radiation in both the epidermis and dermis layers of the skin [(2)].

The flavonoid **silibinin**, found in abundance in Milk Thistle, when applied topically over mouse skin and taken orally, was found to reduce the damage caused by UVB exposure in the skin of the mice [(3)].

When **resveratrol** was topically applied to the skin of mice, it was found to reduce the spread of their skin tumors [(4)]. Creams that contain resveratrol have been found to exhibit significant improvements in skin elasticity, hydration and luminosity; all without any side effects in healthy adults [(5)]. In another study involving 55 participants, when resveratrol was combined with **baicalin**

and **vitamin E** and applied topically to the particiapt's skin, it resulted in improvement of their photodamaged skin over the period of 3 months [6].

The progress of tumors was reduced by topical application of **ursolic acid** when applied to the skin of mice [7]. Also when **rosemary** was added to the ursolic acid, and applied to the skin of mice, it reduced the number of tumors [8].

Garlic oil has also been found to reduce skin tumor yield when applied to the skin of mice in a dose-dependent manner [9].

And when a topical application of **eugenol** (*found in abundance in cloves*) as well as an oral administration of a clove infusion was given to mice who had been diagnosed with skin cancer, the combination delayed as well as reduced the incidence of their skin tumors [10].

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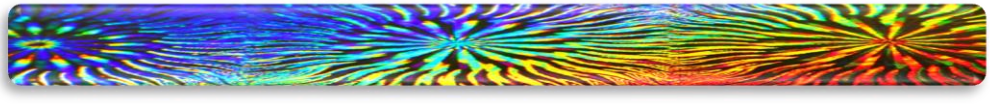
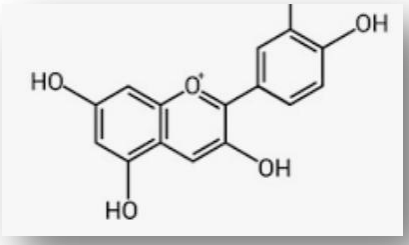


GLOSSARY

Anthocyanins



Anthocyanins are part of the flavonoid family of plant substances and have a wide range of health-promoting benefits. Because their color deeply penetrates many substances, they are used as food colorants in beverages or acidic foods, including soft drinks, dairy products, frozen products, fruit preserves, sugar confectioneries, dry mixes and alcoholic drinks.

Grape skins are the anthocyanins most commonly used, as are anthocyanins from cranberries, elderberries, cherries, black currants, strawberries and red cabbages. Other sources that contain anthocyanins include red and purple sweet potatoes, radishes and black carrots. Grape skin, berry and seed extracts are used in the nutraceutical industry as dietary supplements due to their anti-aging potential [1].

How are anthocyanins absorbed?

Anthocyanin absorption occurs in the stomach and /or intestine. Due to the ease of their rapid and biological bioavailability, anthocyanins quickly migrate to various brain regions such as the cortex, hippocampus, cerebellum and striatum [1a].

Anti-Inflammatory

An anti-Inflammatory is a substance that reduces inflammation such as swelling, redness or pain anywhere in the body by blocking substances in the body that are responsible for causing inflammation. Certain anti-inflammatorys are currently being studied to treat and prevent cancer.

Antimetastatic

A form of treating cancer that involves combining multiple drugs with chemotherapy.

Antipyretic

Substances that prevent or reduce fever.

Antioxidants

Antioxidants are health promoting compounds found in abundance in some plants. They have extremely powerful health benefits due to their ability to reduce the damaged caused by free radicals, which are small particles that destroy the body's cells through a chemical reaction that partly involves oxygen. Antioxidants have been associated with the prevention of cancer, reducing cardiovascular disease and neurological degenerative disorders. They are also linked with anti-diabetic bioactivities and have been associated with the reduction of obesity. Antioxidants can directly scavenge free radicals, protecting cells against oxidative stress related damage to proteins, lipids and nucleic acids [1b].

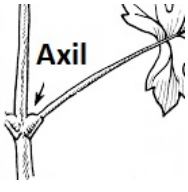
How do Antioxidants Work?

A part of the aging process that takes place in the body is called oxidative processing. This is the production of reactive oxygen species (ROS), also called free radicals. The

substances produced in the body are hydroxyl ions (OH−1), superoxide ions (O−2) and hydrogen peroxide (H2O2) (*a non-free radical species*). These natural chain-reactions play major roles in the progression or initiation of many diseases such as diabetes mellitus, cancer, Alzheimer's and cardiovascular diseases [2]. Our bodies have built into them natural defence mechanisms which naturally reduce or help neutralize the production of these types of free radicals produced from these chemical reactions occurring in our body. However there are times when our body may become overwhelmed by these free radicals due to stress, over-exercise or other exterior conditions. It is during these times that outside help from externally acquired antioxidants is required. Many of these necessary antioxidants are found in foods and plants. Synthetic antioxidants can be used, however unlike a plant which contains substances that help deal with excess antioxidant overload in the body, synthetic antioxidants can produce toxic effects if improperly used or taken in excessive amounts [3] [4]. Hence natural antioxidants found in plants and foods come with the advantage of low toxicity, a lower cost and most of all a stronger overall antioxidant capacity. For example, research studies prove that the intake of antioxidant-rich foods is inversely related to the prevalence of many degenerative diseases that are responsible for numerous health issues [6] [7].

Axil

The Axil is the upper angle between one part of the plant stem and another part of the stem.



Ayurveda

Ayurveda is Sanskrit for The Science of Life. It began in India over 5,000 years ago and is referred to as the "*Mother of All Healing*."

Apiculate

A region that ends abruptly in a small distinct point on an apiculate leaf.

Aromatic compound

Chemical compounds that contain electrons within a molecule that are held strongly together.

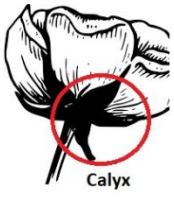
Basal Bracts

Is a leaf that is smaller than its foliage leaves that usually has a single flower growing in or around the axil. Bracts are usually different from foliage leaves and can be larger, smaller or a different shape, color or texture. They vary in appearance from the petals or sepals of the flower.

Buttressed

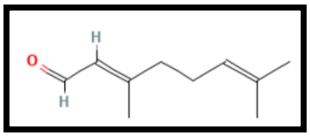
Buttressed roots have wide and large roots and usually occur on shallowly rooted trees. Buttress roots have a shallow layer of fertile soil. The trees need shallow roots to reach the soil's nutrients due to the fact that the shallow roots can't support large rainforest trees.

Calyx



A calyx is the sepals of a flower that forms a whorl enclosing the petals, forming a protective layer around the flower bud. Once the flower blooms, the calyx will be found at the base of the flower, beneath its petals.

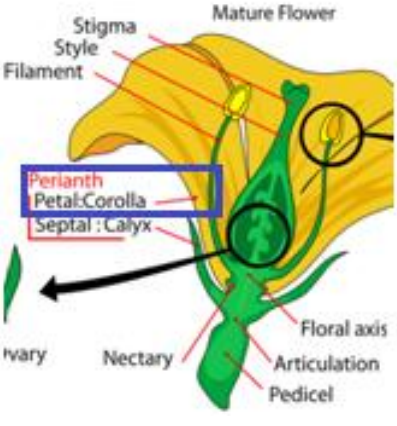
Citral



Citral is the name used to describe the aldehydes neral (*a-citral*) and geranial (*ß-citral*).

Citral is commonly used in the food and cosmetic industries that require a lemon scent and because it is highly anti-bacterial. It also helps protect the skin against UVB rays. For example, a research study evaluated Citral's chemoprotective effects on hairless mice that were exposed to repeated sessions of artificially created UVB rays for a total of 6 months to stimulate harsh outdoor sunshine. The Citral dosage administered was between 0.1, 0.5 and 1%. The researchers in the study discovered that the Citral reduced the regions of rough, scaly patches of skin on the mice as well as symptoms of squamous cell carcinoma, which is one of the more common forms of skin cancer [9].

Corolla



A corolla is a part of the collective petal of a flower.

Corymbs

Corymbs are a topped inflorescence in which the plant's flower stalks arise at various levels on its main axis, reaching approximately the same height in which the outer flowers will open first.

Cortisol

Cortisol helps regulate motivation, mood and fear. The adrenal glands, which are located at the top of your kidneys, assist the body in making cortisol. Coritsol also helps the body properly utilize carbohydrates, proteins, fats, control inflammation, regulate blood pressure, increase blood sugar,

govern the sleep/wake cycle and also helps provide the necessary substances in your body to handle stress and restore balance.

Cyme
A cyme is a flat-topped inflorescence structure in which its central flowers open first. This is than followed by the peripheral flowers.

Cuneate
It is a form that is narrowly triangular in nature, having an acute angle towards the base (*pictured*).


Cuneate

Deciduous
When the trees fall off of a tree during its leaf shedding season, most often during autumn.

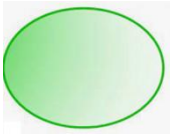
Diaphoretic
To sweat heavily.

Diuretic agent
A substance that increases the flow of urine (e*g; drinking lots of water*).

Drupe
A fleshy fruit that has thin skin with a central stone that contains a seed. Examples include cherrys, plums, almonds and olives.

Ellipsoidal
Ellipsoidal means spheroidal, rounded and curving, rather than jagged and angular.

Elliptic
Related to or having a form of an ellipse.



Falcate
A curved or hooked like shape resembling a sickle.

Flagella
Long structures of indeterminate length.

Flavans
A yellow water-soluble pigment, much like a dye.

Free Radicals
A chemical chain reaction that damages the body's cells and which is a major contributor to the body's aging process. Although our bodies naturally make substances to defeat free radical reactions. However, over time the body cannot produce enough defence mechanisms in order to overcome the free radical process entirely; resulting in the gradual aging of the body.

Fronds
The leaf like part of a fern (*pictured*), palm or similar species. For example, the "*fronds of bracken*".

Geroprotector
A research strategy or method that focuses on affecting the root cause of age-related diseases and thus prolong lifespan.

Glabrous
The skin or leaf that is free from hair or of a smooth texture.

Glycation

Glycation takes place when glucose is combined with the collagen and elastin fibers in your skin. This causes a chemical reaction that results in what's known as Advanced Glycation End Products (AGEs) because the glucose ends up absorbing itself into the collagen in the skin's cells, which can cause the skin to become rigid. As the body ages, AGE molecules accumulate in the skin and destroy the skin by eroding its elastin and collagen. In simple summary, Glycation is one of the main causes of aged skin. Glycation can also occur from excess sugar consumption or excessive UV radiation.

Inflammation

There are 2-types of inflammation. The first is the kind you feel after a hard workout; your muscles feel sore and tired. This type of inflammation is good because it is repairing and rebuilding the muscles. In some cases a mild bacterial infection can be the cause of inflammation, which stimulates your body's T-cells to make more antibodies to fight an upcoming infection. If however the inflammation does not fade and continues to persist, it leads to diseases such as arteriosclerosis, rheumatoid arthritis, asthma and gastritis. Other diseases caused by excessive inflammation include arteriosclerosis, inflammatory bowel disease, cancer and arthritis.

Inflorescence

Inflorescence is the complete flower head of the plant arising from the end of a plant's stem which includes its stalks, stems, bracts and flowers. This is in comparison to an axillary inflorescence which instead arises

from the leaf base.

In-vitro and In-vivo

1 - In vivo is when research is performed within the entire living organism. 2 - In vitro is when research is performed outside of the living organism. Examples include studying cells in culture or methods that test the antibiotic sensitivity of certain types of bacteria.

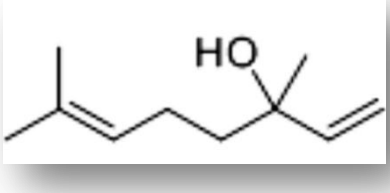
Lanceolate

Describes a specific type of leaf shape in plants. It is usually around four times as long as its broadest point, with the tip narrowing down towards a definitive shar p apex. The base may be pointed, broad and slightly flared.

Leaflets

A leaflet is a leaf-like part of a whole compound leaf. The leaflet is not entirely borne upon the plant's main stem or its accompanying branch, but upon a petiole or branch of the accompanying leaf.

Linalool



Linalool has been recommended as a source for natural antioxidants. As stated throughout this book, taking foods that have natural antioxidants in them can be better than synthetic antioxidants because natural foods abundant in natural antioxidants have substances that can help neutralize

antioxidant overload to a certain extent [8].

Linalool has demonstrated numerous therapeutic benefits, many of which relax the body and produce anti-anxiety effects. A research study found that inhaling linalool reduced blood pressure as well as the pulse rate in a study conducted on volunteers [9b]. The same study also looked at using Linalool to treat carpal tunnel syndrome.

Further Reading

Linalool reverses neuropathological and behavioral impairments in old triple transgenic Alzheimer's mice. Sabogal-Guáqueta Angélica Maria et al. 2015.

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Anticancer effect of linalool via cancer-specific hydroxyl radical generation in human colon cancer. Iwasaki K, Zheng YW. World J Gastroenterol 2016; 22(44): 9765-9774 [PMID: 27956800 DOI: 10.3748/wjg.v22.i44.9765] et al. 2016.

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Macrophages

Macrophages help reduce inflammation and nitric oxide (NO) production in the body. Nitric Oxide is another one of the main contributors to aging.

Nanoparticles - Gold Based

Certain species of plants can be used to manufacture gold nanoparticles [10]. Because they have the unique ability to produce heat, [11] it makes them of extreme benefit for use in photodynamic therapy [11], which is used to target and kill cancerous cells. Plant based gold nanoparticles existing in Nerium oleander have been shown to kill breast cancer cells [12] and exhibit anti-glycation effects [13].

Did you know?

The Alfalfa plant has been used to produce gold nanoparticles [15] [16] [17]

Gold nanoparticles reduce skin aging

Gold nanoparticles have also been found to be of great use for the skin. For example studies have found that gold nanoparticles improve skin brightening, reduce wrinkles, exhibit cleansing effects, reduce inflammation and ROS damage, promote skin healing, exhibit anti-bacterial activity, slow down collagen depletion and slow down elastin degradation [14].

Gold nanoparticles exhibit anti-oxidant activities and are also an anti-inflammatory. In a study combining collagen with gold nanoparticles, in order to stimulate the surface of human skin, the study found that the gold nanoparticle collagen combo produced significantly less glycation (56.3±4.2%) compared to the control samples. It also significantly decreased the distribution of AGE's [18]. Hence, gold nanoparticles show potential to help prevent skin related glycation effects.

Green tea extract can be used as a reducing agent to reduce gold salts to gold nanospheres. This is because polyphenols from tea extracts are highly efficient catalysts, having the ability to reduce various aromatic nitro compounds in aqueous solution into nanoparticle form [19].

Medicinal Uses of Nanoparticles

Studies have found that nanobased materials can facilitate stem cell therapy, making it useful for bone engineering *(Deng et al. 2011)* and they have been extensively studied for their ability to heal wounds *(Heo et al. 2011; Kim et al. 2011; Klein et al. 2011; Ravari et al. 2011)*. Also gold nanoparticles have been demonstrated to exert beneficial effects on mouse bone marrow mesenchymal stem cells as revealed in a 2010 research study *(Yi et al. 2010)*.

Nanoparticle Cautions

An excess of anything is not healthy. A research study published in the journal Nanotoxicology discovered that gold nanoparticles can accelerate the aging process, causing wrinkles to appear [20]. This is due to the fact that gold nanoparticles are commonly added to high-end personal care products, which are then applied to the skin and face to create an artificial glittering appearance. The study also found that the gold particles inhibited fat storage, slowed down wound healing and contributed to the onset of diabetes, according to the researchers at Stony Brook University [20]. Just as excess synthetic antioxidants were shown earlier to cause harm, the same applies to gold nanoparticles. Hence, the gold nanoparticles naturally distributed in plants offer the best protection when properly used.

NMT

NMT is short for Methyltryptamine. It is a member of the tryptamine chemical class and is naturally biosynthesized in the human body from tryptamine. It is derived from L-tryptophan which is found bark, shoots and leaves of several plants.

NRF2

NRF2 exhibits very potent anti-inflammatory activity and exerts some of the strongest anti-aging mechanisms [21].

Obovate

An ovate with the narrower end being at its base.

Peduncle

A peduncle is the stalk that is connected to a fruit or flower; or the main stalk of an inflorescence.

Peduncle

Petiole

Petioles are the main stalks connecting leaves to a plant's stem.

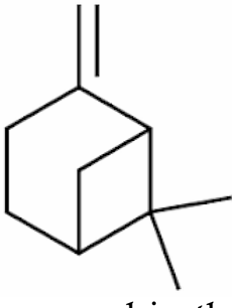
Phytochemicals

These are various active compounds that are biological in nature. They are commonly found in plants.

Phyllodes

A phyllode is a modified petiole or the stem of a leaf which has a leaf-like appearance. However it becomes flattened and widened as the leaf becomes reduced or vanishes altogether.

Pinene



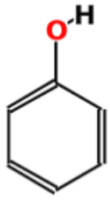
Pinene is commonly found in abundance in pine trees. It exhibits a number of pharmacological activities including anticoagulant, antitumor, antimicrobial, antimalarial, antibiotic resistance modulation, anti-Leishmania, antioxidant, anti-inflammatory and analgesic effects [21a]. Because Pinenes are very flexible, they are used in the synthesis of polymers, which are used to make grocery bags, water and soda bottles.

Pinene Reduces Hyperthermia

Hyperthermia is the result of an abnormally high body temperature that is caused by the body's heat-regulating

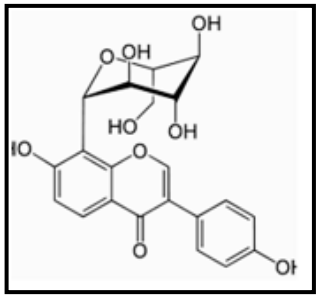
mechanisms failing. A study found that inhaling pinene at doses of between 0.003% and 0.3% decreased hyperthermia in mice. Researchers in the study concluded that the dose of 0.03% was the best dose for reducing stress-stimulated hyperthermia [22]. Pinene has also been used to treat anxiety and depressive-like behaviors [23].

Phenolics



Phenolics are readily absorbed through walls in the stomach's intestinal tract and help avert damage of the body's cells caused by free-radical oxidation reactions. Phenolic acids also exhibit anti-inflammation activity. Phenolic compounds exhibit good chemopreventive properties (*e.g.,anticarcinogenic, anti-inflammatory, antioxidant or antimutagenic*) and contribute to their inducing apoptosis by arresting cell cycle, helping the body to fight cancer [24].

Ploypheno1s

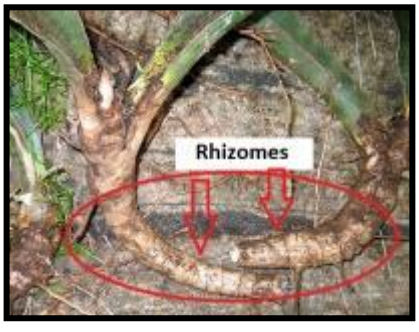


Polyphenols have reducing properties. When combined with vitamin E, vitamin C and carotenoids, help protect the body against oxidative stress, cancer, coronary heart disease and inflammation [25].

Polyphenols also play a role in managing the body's blood pressure as well as play roles in keeping the body's blood vessels flexible and healthy, which in turn promotes good circulation. Polyphenols have also been proven to control and reduce blood sugar levels. Some of the more effective polyphenols include: resveratrol, ellagic acid, quercetin and catechins [26] [27].

Racemes

Racemes are flower clusters containing separate flowers attached by short equal stalks that are at equal distances along its central stem.



Rhizomes

Rhizomes consist of horizontal underground stems that produce lateral shoots and adventitious roots at various intervals.

Sclerophyll Forests

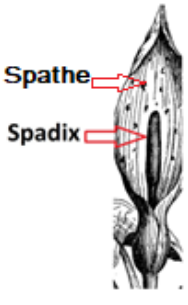
Regions of rainforest with fertile soil that contain wattles, eucalypts and banksias trees.

Spathe

A spathe is a large sheathing bract that encloses a cluster of flowers.

Spadix

A spadix consists of a spike that is made up of tiny minute flowers which are closely arranged around a fleshy axis and usually enclosed in a spathe.



Stamen

A long slender stalk containing a filament that usually contains a two-lobed anther at its tip.

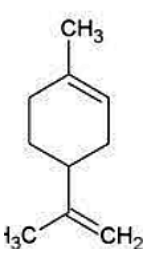
Stipules

Small leaflike appendages on a leaf which are borne in pairs at the base of the stalk of the leaf.

Tepals

A tepal is one of the outer parts of a flower

Terpenes



Terpenes and terpenoids are the largest groups of plant secondary metabolites. A geroprotector is a senotherapeutic that addresses the root cause of age-related diseases, and to prolong life span. Specific geroprotectors include metformin, delta sleep-inducing peptidenicotinamide mononucleotide (NMN), melatonin and carnosine.

A research study looked at the ability of terpenoids to act as geroprotectors, including their lifespan-extending effects, improvements in aging biomarkers, minimal adverse effects, low toxicity and improvement of the quality of life on various models. The study found that the number of substances demonstrating the greatest criteria of geroprotectors were among various classes of terpenoids. The study concluded that terpenoids exist as a vastly understudied source of potential geroprotectors which can influence the mechanisms of aging and as well as age-related diseases [28].

This Bristlecone Pine has been dated to be over 4,770 years old

Natural terpenoids are found in abundance in pine trees. They produce it as a resin type substance in their bark and branches for use as a defense mechanism for repelling insects and other attacks [29] (*perhaps against the cold and harsh winds*). It may be that the terpens found in pine trees

are responsible for the longest living tree; the Bristlecone Pine, which has been dated at over 4,770 years old [30].

Umbels

Umbels are a flower cluster upon which stalks of nearly equal length grow from a central point forming flat or curved surfaces. For example the umbels seen in parsley.

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Additional Reading

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Species listed by known Therapeutic Use

Please note, the medicinal results of the plant studies are not always human based. Some studies have been done on animals, others on biological cells and tissues, others in-vitro or in-vivo and others have been proven effective in tightly controlled human clinical trials. Hence, it is up to the reader to review the listed study associated with that plant's medicinal properties for a more in-depth review on how the plant exerts its healing effects.

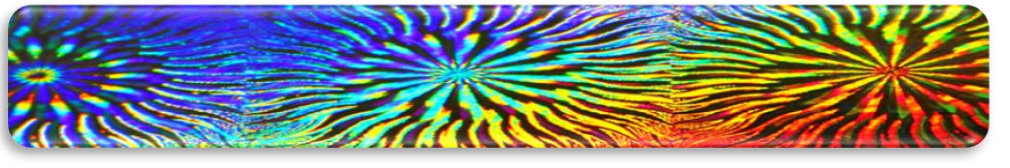
Index. Plants by Therapeutic Uses

Index. Plants listed Therapeutic Substances

Quick-find plant species by scientific name

Quick-find plant species by common name

Index. Plant Name Species for Stunning Fish



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Scott Rauvers

Author