

abp Tamanu Oil

A Unique Tropical Healing Oil

Scattered throughout the tropical areas of the South Pacific and Indian oceans, there is a tree with the botanical name of *Calophyllum inophyllum*. It is a member of the Guttiferae family, to which mangosteen also belongs. An aromatic oil, pressed from the dried nuts of the tree, has long been used in traditional medicine. It is more commonly known as “Tamanu” in Tahiti, “Kamani” in Hawaii, “Foraha” oil in Madagascar and many other names unique to each country in which it grows.



The name of the genus *Calophyllum* means "beautiful leaf", from the Greek *kalos* (beautiful) and *phullon* (leaf). The tree is found in many Southeast Asian countries, the islands of the Pacific and tropical areas of the Indian ocean including Northern Australia, Thailand, Vietnam, Myanmar, Malaysia, South India, Sri Lanka, East Africa, Madagascar, Vanuatu, Fiji, Samoa and on.

The Tamanu tree grows up to 30 meters in height, with long, spreading limbs. The tree trunk is typically thick with dark, grayish-brown cracked bark. The branches are covered with shiny, dark-green oval leaves, and small white flowers with yellow centers. The blossoms give off a delightful, sweet perfume. The inedible mature green fruit of the tree, about the size of an apricot, has a thin flesh and a large nut hull inside.

The tree can grow in inland areas, but it is most prolific in coastal areas. The tree is well suited for growing in sandy, salty soil and like the coconut, the fruits are dispersed in the ocean and germinate on the beaches upon which they land.

Tamanu Oil

In traditional medicine, many parts of the Tamanu tree have been used – leaves, bark, roots, plant sap and the gum resin derived from wounding of the bark. The oil expressed from the dried nuts has been the most widely used derivative from the tree.

As compared to most other oil-bearing nuts and seeds, Tamanu nuts are unique in that the fresh nuts contain little oil.

As the nut kernels are dried for up to a month, they turn dark brown in colour and a large amount (up to 75% by weight) of an aromatic oil is formed. The greenish oil is easily removed by mechanical pressing of the nut.

The resulting oil is rich in various fatty acids and aromatic compounds, including:

- 88% of triglycerides of linoleic, oleic, palmitic, stearic and calophyllic fatty acids (a novel fatty acid derived from calophyllolide).
- 3.5% phytosterols and sterol esters.
- 6.4% glycolipids
- 1.6% phospholipids
- Calaustraline (a coumarin compound), calophyllolide and inophyllolide (both complex lactones).¹

Traditional uses and modern research:

Tamanu oil has a long history of traditional use that continues today in the many countries in which it natively grows. There is a growing body of modern research that has demonstrated the efficacy of Tamanu oil in numerous conditions:

Muscular & joint complaints: A number of societies have used Tamanu oil for its analgesic and anti-inflammatory effects, as in rheumatism, sciatica, bone injuries and neuritis.²

Modern studies have demonstrated that the coumarin calophyllolide, along with other xanthone compounds in the oil have definite anti-inflammatory properties, reducing histamine inflammation and carrageenan gel-induced tissue swelling in rats, comparable to the effectiveness of hydrocortisone.^{3,4}

Anti-neuralgic

Tamanu oil has a traditional history of topical use for relieving the pain of sciatica, shingles, neuralgia and leprosy neuritis. In the late 1920's, a nun stationed in Fiji became aware of a topical aid for neuritis known locally as dolno (the local Tamanu oil).

The nun began to administer Tamanu oil topically to leprosy victims for the relief of neuritis associated with that disease, with apparent positive results. Tamanu oil was also injected underneath the skin in local affected areas as well.⁵

The benefits of Tamanu oil in such conditions is related to its anti-inflammatory and analgesic effects. For viral infections that cause nerve inflammation and damage, such as shingles, the anti-viral efficacy of Tamanu oil is relevant in helping to resolve the infection.

Wound healing & Anti-inflammatory

In the 1930's, French researchers, intrigued by the anti-neuralgic properties of Tamanu oil, quickly became more interested in the wound healing properties of Tamanu oil. The wound healing properties of Tamanu oil had already been long recognized traditionally.

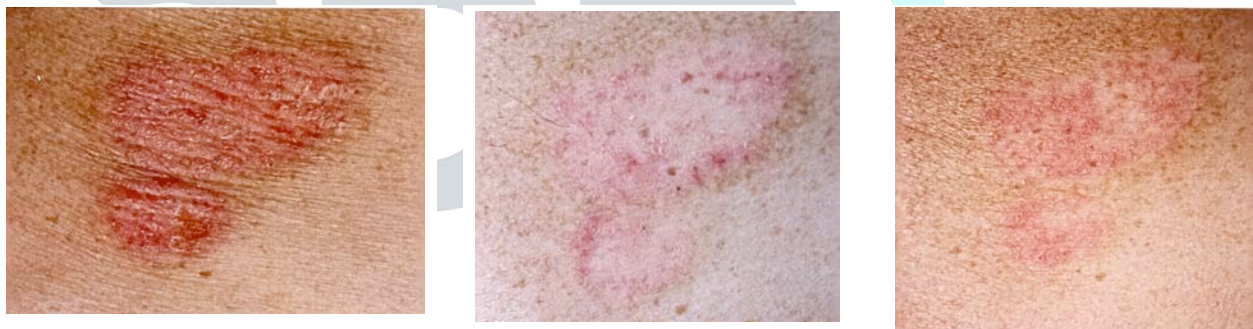
Tamanu oil acts by activating and speeding up the formation of granulation tissue and the regeneration of the epidermal cells of the skin. ⁶

French medical literature on Tamanu oil reports several instances of its successful use in cases of severe skin conditions, with photographs showing before and after use.

In one of the most remarkable instances, a woman was admitted to the St. Louis Hospital in Paris with a large gangrenous ulcer on her leg that would not heal. She was given regular dressings of Tamanu oil, even though the attending doctors felt that amputation would be ultimately necessary. It was reported that the ulcer eventually healed completely, leaving only a smooth, flat scar. ⁷

In other reported cases, Tamanu oil has been reportedly employed to successfully heal a number of different wounds: minor wounds, chapped & cracked skin, ulcers and slow-healing (atonic) wounds in general, anal fissures, post-surgical wounds, wounds to mucous membranes, including gingivitis, gastric & duodenal ulcers and burns caused by boiling water, chemicals UV exposure (sunburn), and by radiotherapy treatments. ^{8, 9}

The healing and anti-inflammatory properties of Tamanu oil has also been reported to be of benefit in dealing with acne, eczema and psoriasis. ^{10, 11}



Example of psoriasis treated with daily application of undiluted Tamanu oil

Left: 7/12/08 Psoriasis lesion, inflamed, scaling and itchy.

Middle: 14/01/09 Reduced itchiness and inflammation

Right: 1/02/09 No scaling and itchiness. Near normal skin appearance. ¹²

Scar reduction

There are anecdotal reports of Tamanu oil being useful in reducing the size of scars.

One research study evaluated the efficacy of Tamanu oil in improving scar appearance and size. Six subjects were chosen with obvious, aged scars, older than one year.

Tamanu oil was applied twice daily to a scarred area for nine consecutive weeks, with no use of any other cosmetic products on the area one week prior and during the nine week trial.

A significant improvement in the appearance of scars was noted visually after 6 weeks of Tamanu oil use. This improvement continued through to week 9 of the study (Fig. 1). The overall size of the scars consistently decreased throughout the study (see below).

The length of scars was reduced by an average of 0.28cm, and the width by an average of 0.12cm (Fig. 2).¹³

Anecdotal experience suggests that the use of Tamanu oil, blended with a highly polyunsaturated vegetable oils such as Rose Hip and a 5% concentration of Everlasting (*Helichrysm italicum*) essential oil is perhaps more active as a blend to reduce scarring.¹⁴

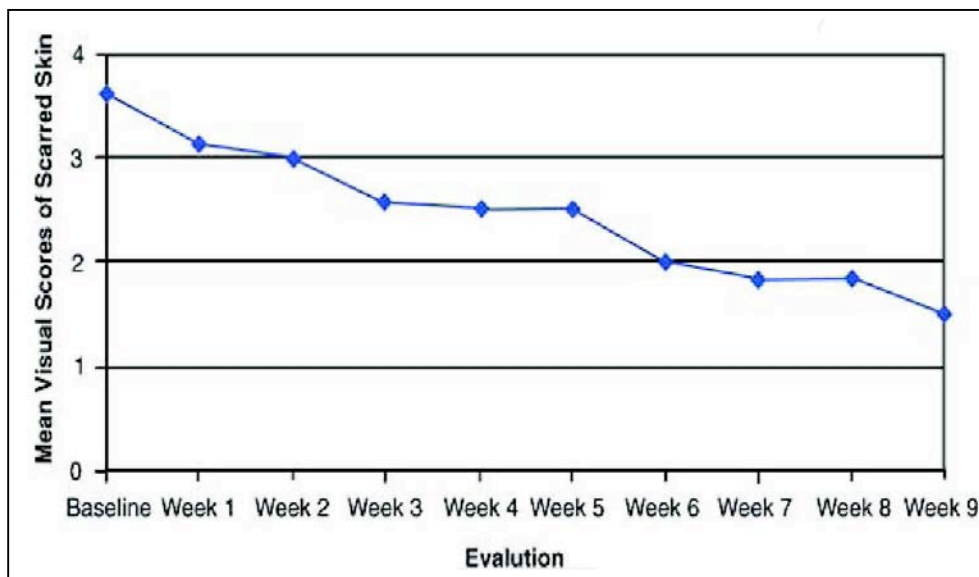


Fig.1
Visual rating of scar appearance improvement (colour, roughness and degree of difference from surrounding normal skin).

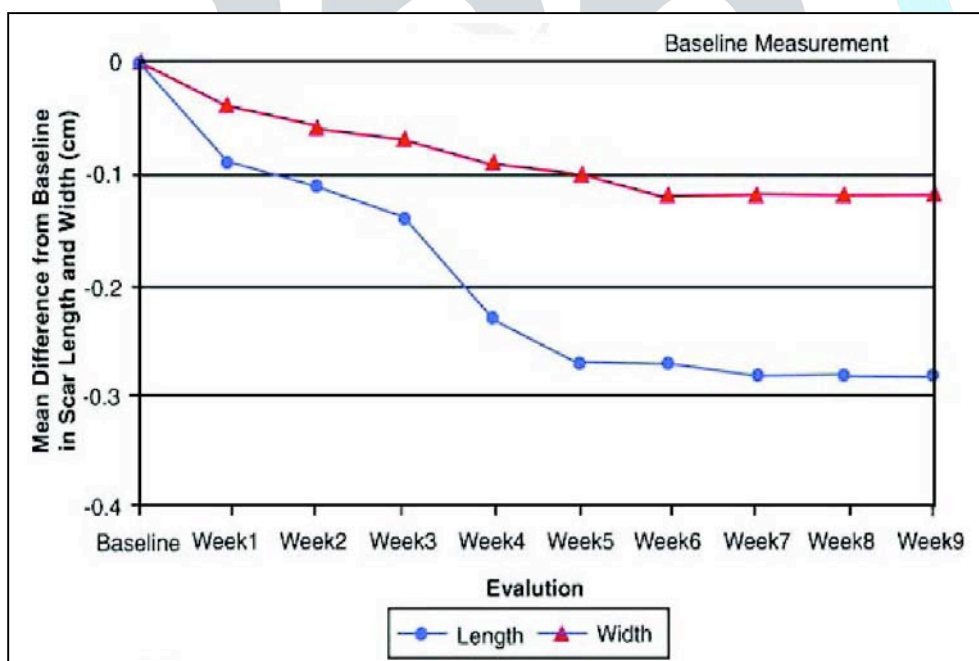


Fig. 2:
Mean difference from baseline measurement (0) in scar length and width with twice daily application of Tamanu oil

Circulatory complaints

Lactones such as calophyllolide in Tamanu oil give the oil good anti-coagulant properties, similar to the sesquiterpene lactones found in the more well known *Arnica montana* herb.

This property makes Tamanu oil useful for bruises and sprains, to help reduce pain and speed the absorption of extravasated blood (the cause of the 'black and blue' appearance).^{15, 16}

Overall, Tamanu oil is reputedly a good toning agent for veins and capillaries, being of use for minor varicose veins, haemorrhoids, spider veins and couperose.¹⁷

Anti-infectious properties

The lactones and coumarin compounds present in Tamanu oil do have some mild activity against bacteria and fungi.

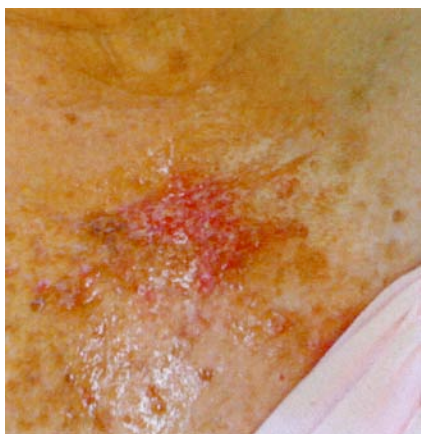
A fraction (n-butanol extract) of Tamanu oil was examined against various fungal cultures, showing significant activity against *Trichophyton semii* and *T. metagrophyte*. These two fungi occur on the scalp and skin and can be responsible for the fungal infections of ringworm of the skin & scalp and tinea (athlete's foot). Researchers concluded that the antimicrobial agents in Tamanu oil could be used effectively to treat a range of infections of the skin and eyes and to treat ringworm.^{18, 19}

Most interesting is the anti-viral activity of Tamanu oil. The coumarin compounds in Tamanu oil have been demonstrated to inhibit the HIV virus (it acts as a reverse transcriptase inhibitor) and the Epstein-Barr virus.^{20, 21}

Chronic infection with Epstein-Barr virus is associated with the development of human cancers, as with Hodgkin's and Burkitt's lymphoma.²²

Although the effect of Tamanu oil against common viruses such as *Herpes simplex* ('cold sores' and genital herpes) and *Varicella (or Herpes) zoster* (shingles) has not been studied directly, there is again a long history of traditional use and many good anecdotal reports of successful outcomes against these viral infections.^{23, 24}

Tamanu oil would be applied topically to affected areas, three or more times daily. The addition of essential oils with purported anti-viral activity such as *Eucalyptus radiata*, Geranium and others would increase the efficacy.²⁵



Pictures above:

Diagnosed case of shingles – *Herpes zoster* infection in a 78 year old woman on the neck area.

Left: Appearance 1 week prior to initial application of Tamanu oil.

The lesions were weeping, inflamed blistery and extremely painful to rub or touch. Tamanu oil was then applied 3 times per day.

With the first application, 30 minutes later there was a reduction in pain less pain and the tightness of the skin eased up, giving a greater range of motion. The infected skin area could be touched without any pain after 5 days of application.

Right: Appearance after 6 days of Tamanu oil application. The lesions have resolved and new pink skin is appearing.²⁶

Tamanu oil for topical first aid

With its broad range of beneficial activities, such as wound healing, anti-inflammatory, pain relieving and on, Tamanu oil is a useful 'first aid' remedy. Tamanu oil can be applied undiluted to the skin with no adverse effects. Tamanu oil is also an excellent active 'base' for the addition of pure essential oils and other beneficial oil-soluble ingredients.

Tamanu oil for cosmetics

The benefits of Tamanu oil means that it is an excellent active ingredient for cosmetic products, especially creams, lotions and ointments.

Tamanu oil will be particularly useful for sensitive, mature and dry skin; for after-sun products and to reduce irritation after shaving, hair removal and on.

Tamanu oil has been used traditionally in Fiji to help prevent and treat diaper rash and used to heal chapped lips.

Tamanu oil absorbs readily into the skin, leaving the skin smooth and soft and without a heavy residual oiliness.

Use levels of 5% of the total formula or higher is recommended for the best results.

Tamanu oil and sustainable harvesting

Sourced from Vanuatu, Tamanu oil is produced from wild-harvested fruits. The nut-containing Tamanu fruits are collected from the ground after they have dropped from the tree.

Because the fruits are collected after they drop, there is no negative impact upon the life or habitat of the Tamanu trees. Neither the land nor any surrounding plants are disturbed as a result of collection. If not collected, the fruits and nuts simply decompose. Thus, Tamanu fruit collection is a low impact, environmentally sustainable activity.

In Vanuatu, harvesting of Tamanu fruits from beach areas is a small but growing source of income for native people who collect the fruits and are typically paid by weight. Relative ease of collection, and abundance of fruits on beaches, makes Tamanu harvesting a desirable income-producing activity. The development of Tamanu oil production in Vanuatu has turned a natural forest product of no prior significant local use into a commodity of financial value. Revenues from collection contribute positively to small village economies.

Summary

Tamanu oil is an excellent example of a traditional remedy that has been used in many traditional cultures that is now gaining increased interest as a botanical extract with numerous benefits.

With its long history of traditional use, good anecdotal case histories and scientific research demonstrating its beneficial properties, Tamanu oil shows real promise for use in a variety of both therapeutic and cosmetic preparations.

Tamanu oil offers three significant benefits:

- The oil offers real healing benefits to users.
- The collection of the fruits and manufacture of the oil cause no damage to the local environment.
- The collection and processing of the nuts provides income to indigenous people, enhancing the local economies of small communities.

References:

1. Kilham C. *Tamanu oil: A tropical topical remedy*. HerbalGram 2004;63:26-31.
2. Dweck A.C. & Meadows T 2002 Tamanu (*Calophyllum inophyllum*)—the African, Asian, Polynesian, and Pacific panacea. International Journal of Cosmetic Science 24 (341–348).
3. Bhalla TN et al. Calophyllolide: a new nonsteroidal anti-inflammatory agent. *Indian J Med Res*. November 1980;72:762-5.
4. Gopalakrishnan C et al. Anti-inflammatory and C.N.S. depressant activities of xanthenes from *Calophyllum inophyllum* and *Mesua ferrea*. *Indian Journal of Pharmacology*. 1980;12(3):181-91.
5. Dweck, A.C. & T. Meadows. 2002 Op. cit.
6. Guba R *Aromatic Extracts as Wound Healing Agents* The Centre for Aromatic Medicine 1996
7. Kilham C. 2004 Op. cit.
8. Franchomme P. *Troubles Circulatoires des Membres Inferieurs les Veinotropes Phyto- aromatiques* Phytomedicine 1987
9. Kilham C. 2004 Op. cit.
10. Franchomme P & Péroël D *L'Aromatherapie Exactement* R. Jollois, ed. 1990
11. Dweck AC & Meadows T 2002 Op. cit.
12. Viewed on 29th July, 2011, [www.storesonlinepro.com/files/2017989/uploaded/Psoriasis treatment Tamanu oil.pdf](http://www.storesonlinepro.com/files/2017989/uploaded/Psoriasis%20treatment%20Tamanu%20oil.pdf)
13. Beausoleil, C., Lehman, L. et al. Evaluation of the Ability of One Test Product to Improve the Appearance of Scars. Bioscience Laboratories, Inc., XX (2001). Report# 010514-111.
14. Franchomme P. 1987 Op. cit.
15. Dweck AC & Meadows T 2002 Op. cit.
16. Franchomme P. 1987 Op. cit.
17. Kilham C. 2004 Op. cit.
18. Yimdjo MC, Antimicrobial and cytotoxic agents from *Calophyllum inophyllum*. *Phytochemistry*. 2004 Oct;65(20):2789-95.

19. Kilham C. 2004 Op. cit.
20. Spino C et al. Anti-HIV coumarins from Calophyllum seed oil. Bioorg Med Chem Lett. 1998 Dec 15;8(24):3475-8.
21. De Clercq E. Current lead natural products for the chemotherapy of human immunodeficiency virus (HIV) infection. Med Res Rev. 2000 Sep;20(5):323-49.
22. Thompson, P & Kurzrock, R. Epstein Barr Virus and Cancer. Clin Cancer Res February 1, 2004 10; 803
23. Dweck AC & Meadows T 2002 Op. cit.
24. Franchomme, P. Les Viroses: Huiles Essentielles Anti-viraux Majeurs. Phytomedicine 1987
25. Guba, R. Aromatic Medicine and Viral Infections. The Centre for Aromatic Medicine 2009
26. Viewed on 29th July, 2011, [www.storesonlinepro.com/files/2017989/uploaded/shingles-Herpes zoster virus-tamanu oil.pdf](http://www.storesonlinepro.com/files/2017989/uploaded/shingles-Herpes%20zoster%20virus-tamanu%20oil.pdf)

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