



Tamanu Tahiti
L'huilerie du commerce équitable

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Tamanu Tahiti Oil from French Polynesia



PF-BIO-154
Agriculture
Polynésie
Française

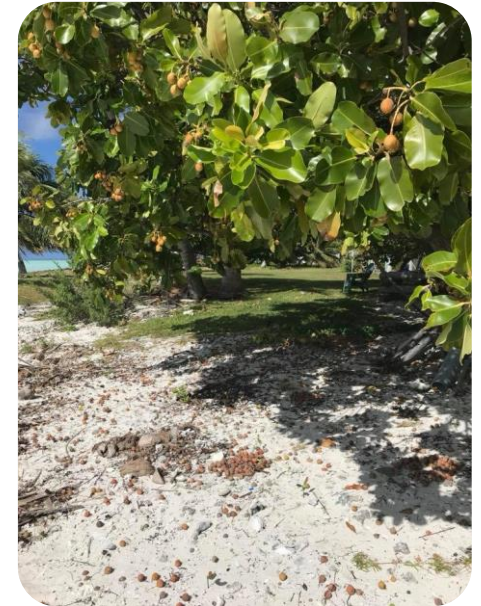
Tamanu Tahiti Oil from French Polynesia

- "Green gold of the Pacific", "sacred oil", "Oil with a thousand virtues", such are the nicknames given in Polynesia to *Calophyllum inophyllum* L., locally called "tamanu" in French Polynesia
- Tamanu is an evergreen pantropical tree growing mostly along the seashores. Its barks, leaves, and fruits are still used in traditional medicine. The oil expressed from the nuts has been also traditionally used.
- Most of the bioactive properties of tamanu oil are attributed to oil composition including the presence of resinous compounds in tamanu oil beside common fatty acids, which constitutes a unique characteristic of this healing oil.
- Actually, resinous part of tamanu oil is known to contain bioactive secondary metabolites mostly constituted by neoflavonoid.



Tamanu Tahiti Oil, origin

- Tamanu oil is extracted from the fruits of *Calophyllum Inophyllum*, a tropical tree also called "Tamanu" or "Ati" in Polynesia.
- *Calophyllum Inophyllum* is a tree that can measure up to 20 meters in height and almost 2 meters in diameter. It grows mainly on the littoral zones and at low altitude.
- The fruits of the tree look like green nuts about 2 cm in diameter and it is their nuts that are extracted for the production of the oil. There is no proper Tamanu crop, this tree grows naturally. However, while growing abundantly on the island, today there are no real forests of tamanu, so plantations are starting to emerge.



Tamanu Tahiti project

Tamanu Tahiti is a socially, environmentally responsible and committed project at the heart of French Polynesia

Tamanu Tahiti commitments:

- **Provide and guarantee work for local people**

- **Income on a fixed price:**

a price list has been announced in the press release . Anyone selling his Tamanu either in shell or in dried almond is paid immediately by the collector (1 collector per island).

- **Training in Tamanu drying techniques:**

Drying training in each island will be organized to improve the level and quality of the raw product.

- **The supply of dryer plan:**

Plans for a standard dryer will be provided and the producer will be responsible for manufacturing it.

The dryers will also be sold in kits at actual cost price. The cost price can be withdrawn gradually on the sales of Tamanu of the Producer according to the amount of his sale.



Tamanu Tahiti project

- **The establishment of a nursery of selected Tamanu plants:**
in liaison with the producers of Tamanu, we will select plants and young shoots of Tamanu tree to grow them and reintroduce them into the natural environment of producers. Thus, we prepare the future and sustain the preservation of the ecosystems.
- **Public awareness and education:**
Awareness campaigns for sustainable development and therefore protection of the Tamanu tree have been put in place for communities and the general public.
- **Tahiti Tamanu is transparent in its management:**
Project leaders are committed to transparency, fairness and respect for each other's work. A charter has been put in place between each producer and Tahiti Tamanu in order to define the roles of each and define the production methods integrating the environmental concerns.



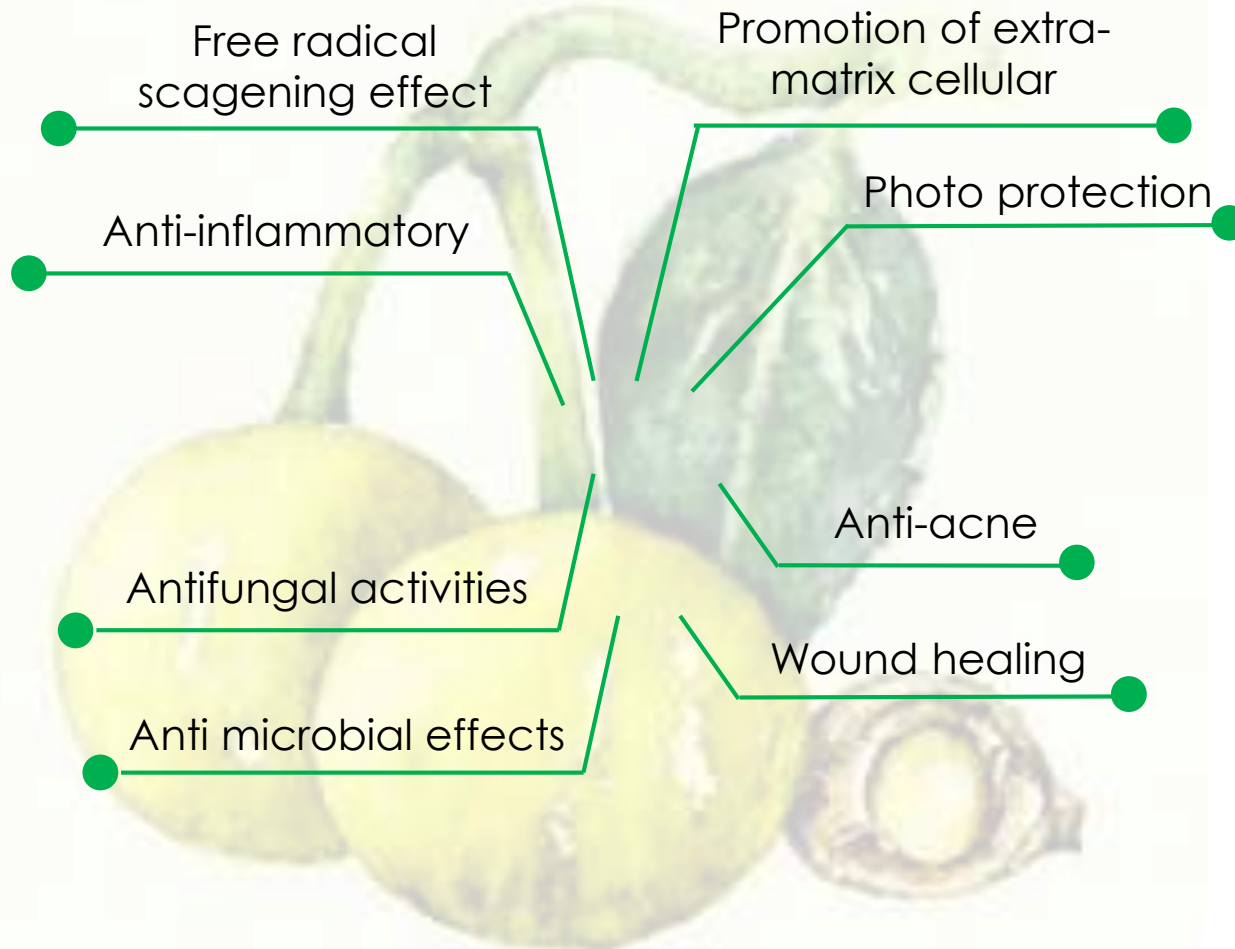
Tamanu Tahiti Oil, composition

Typical Composition	Q ^T (%)
Fatty acid - Omega 9	43
Fatty acid – Omega 6	24
Stearic acid	16
Palmitic acid	14
Unsaponifiable content	0,7

Unsaponifiable Composition	Q ^T (%)
Squalene	30
Stigmasterol	10
Campestérol	2
Betasitosterol	9

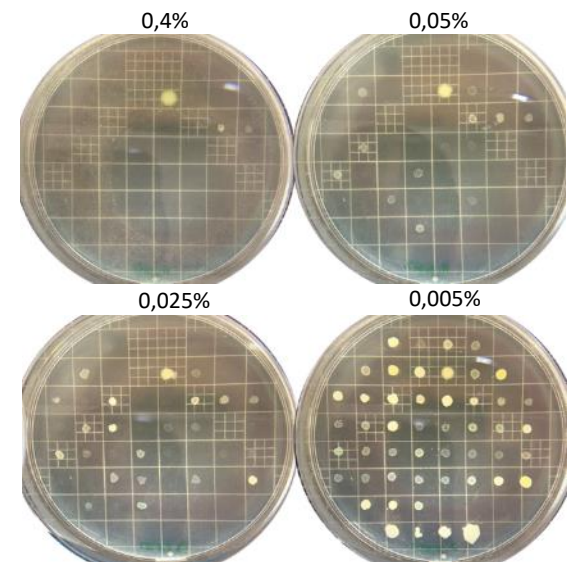
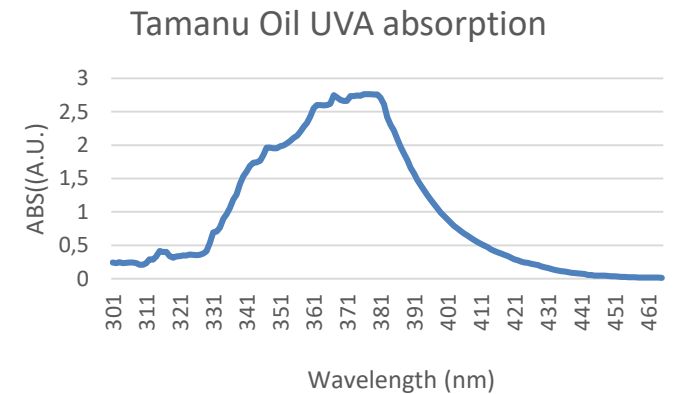
Resinous Composition
Calophyllolide
Inopyllums
Calanolides
Tamanolides

Tamanu Tahiti Oil, skin benefits



Tamanu Tahiti Oil, skin benefits

- **Antioxidant effect** of tamanu oil had been shown by significantly reducing the intracellular ROS production (1)
- **UV photoprotection:** tamanu oil provides UVA absorption
- **Anti-bacterial activity:** Tamanu oil neoflavonoid constituents were found to have antibacterial activity against *Staphylococcus aureus* strain, activities were shown to be stronger than that of the antibiotic standard oxacillin (2)
- Tamanu Oil was shown to exhibit high antibacterial activity against bacteria such as *Staphylococcus aureus*, *Bacillus cereus*, *Staphylococcus epidermidis* and *Staphylococcus haemolyticus* involved in different source of skin infections
- **Anti acne:** Tamanu Oil exhibits high antibacterial activity (within MIC value similar or lower than ofloxacin) against bacterial strains involved in acne (*Propionibacterium* species) (3)
- **Antifungal activities** of tamanu oil ethanol extract had been reported, showing stronger inhibiting activity on various fungal strains (*Candida albicans*, *Candida tropicalis*, *Aspergillus niger*, *Aspergillus fumigatus*, *Alternaria tenuissima*) than fluconazole (10mg) taken as a positive control (4).



Tamanu Tahiti Oil, skin benefits

• Anti-inflammatory

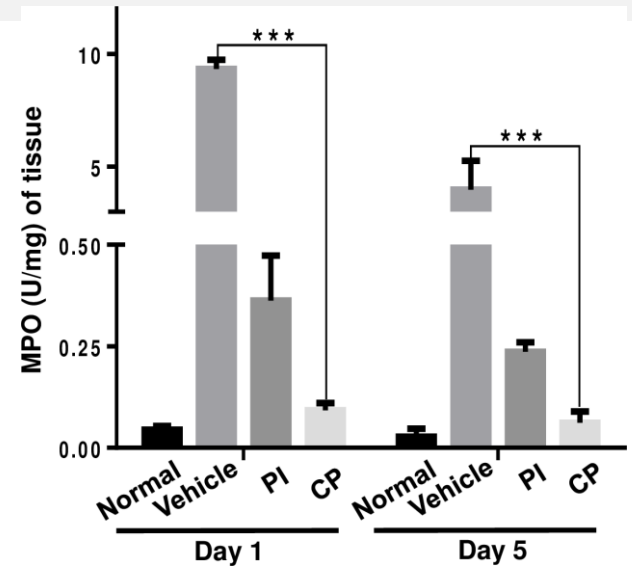
- The calophyllolide molecule in *Calophyllum inophyllum* oil had been reported to possess an anti-inflammatory activity, comparatively to hydrocortisone taken as positive control on formaldehyde induced arthritis inflammation (5)
- Calophyllolide, isolated from *Calophyllum inophyllum*, had been shown to prevent a prolonged inflammatory process by reducing myeloperoxidase (MPO) activity and downregulation of the pro-inflammatory cytokines-IL-1b, IL-6, TNF-a, but up-regulation of the anti-inflammatory cytokine, IL-10(5).

• Wound healing

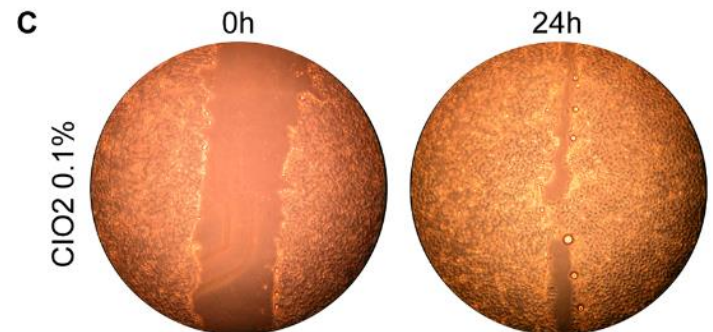
- Tamanu oil promotes wound healing in keratinocyte cells (HaCaT) and also in fibroblast cells (HMDF) (6)
- Calophyllolide (isolated from *Calophyllum inophyllum*) was also reported to reduce fibrosis formation (6)

• Dermal and epidermal extra-cellular matrix proliferation

- The skin-active effect of "tamanu oil emulsion" was investigated on human skin cell cultures showing: cell proliferation, glycosaminoglycan and collagen production as well as wound healing activity (6).



Nguyen V-L *et Al.* Effect of calophyllolide (CP) versus povidone-iodine (PI) on myeloperoxidase (MPO) activity



Léguillier *et Al* (3) Cell migration ability was determined by scratching a confluent HaCaT cell monolayers with a pipette tip. Cells were with 0,1% of Tamanu Oil for 15 min followed by a 24h-recovery period.

Tamanu Tahiti Oil, technical data sheet

- INCI: Calophyllum inophyllum seed oil
- CAS: NA
- APPEARANCE: green liquid (T >25°C). It may crystallized at lower temperatures
- FORMULATION: oil-soluble
- STORE CONDITIONS: 18 months in a ventilated area
- DOSAGE: 1-100%
- TOLERANCE:
 - Cutaneous: non-irritant
 - Ocular: moderately irritant
 - Phototoxicity: non phototoxic



References

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5. Nguyen V-L, Truong C-T, Nguyen BCQ, et al. 2017. Antiinflammatory and wound healing activities of calophyllolide isolated from *Calophyllum inophyllum* Linn. *PloS One* 12(10): e0185674.
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