In the 50’s, the first scientific studies performed on this oil have highlighted the regenerative, healing, anti-bacterial, anti-parasitic properties of this oil, as well as a surprising anti-inflammatory property...

**PROPERTIES**

1. **Moisturizing, Nourishing & Restructuring**
2. **Calming & Protecting (sunburns, sore, erythema...)**
3. **Regenerating epidermic cells (bruns, cracks...)**
4. **Anti-bacterial, Anti-acneic & Antiseptic**
5. **Anti-heavy legs : increases the surface microcirculation**

**MANUFACTURING PROCESS**

• The almonds extracted from the nuts are sundried for 4 to 6 weeks. During the desiccation, they lose up to the third of their weight, take an amber colour and gorge themselves with aromatic oil and resins.
• The oil is extracted by cold pressure.
• It is then purified by filtration and stabilized by a solution of natural tocopherols (Vitamin E).

**USING RECOMMENDATIONS**

**Cosmetic**
- **Care products** (sun and after-sun products, protecting, regenerating and anti-aging products for dry, damaged or irritated skins, sun and after-sun products) : 5 to 20%
- **Make-up products** (lipsticks and lip balms) : 2 to 5%
- **Hair and body hygiene products** (Anti-polluting products) : 0.5 to 10%
- **Natural preservative**
- **Aromatherapy** : pure as active, or associated with other oils.

**Pharmacologic**
- **Dolno** : Tamanu ethylic ether, used for leprous neuritis pains
- **Tacamahaca resins** : included in the French pharmacopoeia, incorporated to magistral preparations (green balms...)
- **Inocalo** : Purified calophyllum oil (galenic forms : ampule, ointment and ovule)

*Pharmaceutical laboratory Pro-Medica, Pari

Tamanu Oil is free from toxicity in the limits of our current knowledge and of the recommended cosmetic uses.

**NOTE** : Below 20°C, a precipitate may form. This phenomenon is normal, and results from the solidification of the resins contained in the oil.
To remedy this, simply heat the oil above 25°C when the incorporation of the oil in the formula for re-dissolve.
**Composition**

- **Resins** : >10%
- **Fatty acids (Triglycerids)** including essential fatty acids:
  - Linolenic acid (precursor of omega 3)
  - Linoleic acid (precursor of omega 6)
- **Unsaponifiables (Sterols)**
- **Triterpenes**:
  - Friedeline \((C_{30}H_{50}O)\)
  - Canophyllal \((C_{36}H_{44}O_3)\)
  - Canophyllol \((C_{36}H_{40}O_2)\)
  - Canophyllic acid \((C_{36}H_{40}O_2)\)
- **Xanthones and steroids**
  - Calophylline B \((C_{18}H_{16}O_4)\)
  - Mesuaxanthone \((C_{18}H_{20}O_4)\)
  - Jacareubine \((C_{18}H_{20}O_4)\)
  - Desoxy-6 jacareubine \((C_{18}H_{20}O_4)\)
  - Dimethylallyltetrahydroxy Xanthone \((C_{18}H_{20}O_6)\)
- **Coumarins**
  - Calophyllolide \((C_{25}H_{22}O_5)\) = natural neo-flavonoid with anti-bacterial and anti-inflammatory effects
  - Inophyllolide \((C_{25}H_{22}O_5)\) = natural neo-flavonoid with anti-viral effect
  - Calophyllic acid \((C_{25}H_{24}O_6)\) = natural neo-flavonoid with healing and anti-parasitic properties
  - Tomentolid A \((C_{25}H_{24}O_5)\)
  - Desoxo-12-hydroxy-12 Inophyllolide \((C_{25}H_{24}O_4)\)
  - Apetalolide \((C_{25}H_{24}O_4)\)
  - Calaustraline \((C_{25}H_{30}O_4)\)
  - Calafloride \((C_{29}H_{36}O_5)\)
- **Other active compounds**
  - Inophyllic acid \((C_{17}H_{20}O_3)\)
  - Calophenic acid \((C_{22}H_{22}O_5)\)
  - Inophenic acid \((C_{24}H_{34}O_6)\)
  - Inophylloidic acid \((C_{25}H_{24}O_5)\)
Efficiency Studies

**Efficiency on Heavy Legs**

«After two daily applications for 5 days, the original Tamanu oil increases the microcirculation of approximately 5% in 63% of the volunteers. 8h after the first application, 81% of volunteers reported an improvement in skin condition and appearance. 69% found their legs lighter and 63% found their legs less tired.»

**DERMSCAN Study - April 2007**

**Protecting Effect**

«The protective effect against external aggressions is assessed by induction of an irritation at the nasolabial folds with a solution of lactic acid before and after application of Tamanu oil. The results obtained allow us to conclude that Tamanu oil has a very good protective effect against the aggressions of the natural environment.»

**EVIC-CEBA Study - June 2000**

**Regenerating Effect**

«On reconstituted epidermis, we assess the cell viability after irrigating treatment and application of a solution containing 3% of Tamanu oil. The results show that Tamanu oil induces a recovery of cell viability of approximately 7% (compared to a control).»

**MICRONA Study - February 2003**

**Anti-Bacterial Effect**

«The bacterial activity was assessed by determination of the minimum inhibitory concentration (MIC) on the growth of a bacteria. The action of Tamanu oil on bacterial growth, and particularly on Propionibacterium acnes, proves that she has a good inhibitory effect and can limit the resulting irritation phenomena: 0.125 mg/ml < MIC < 0.250 mg/ml.»

It is interesting to note that these results are quite similar with the MIC of Zinc derivates, known for their anti-bacterial properties.

**MICRONA Study - October 2002**

**Effect on VEGF Synthesis (Vascular Endothelial Growth Factor)**

«Under the experimental conditions, Tamanu oil increases VEGF production, compared to untreated cells, especially after 6 hours of exposure (+69%).»

**ABICH Study - October 2006**
Tamanu oil is tested on a reconstructed epidermis to assess the production of interleukin IL-1 alpha after exposure to 0.5% SLS (Sodium Laureth Sulfate).

After 16 h:

- Tamanu oil significantly reduces the production of pro-inflammatory cytokines IL-1 alpha. These data can be considered as predictive of a protective and an anti-inflammatory effect on the skin.

Inhibition of IL-1 alpha after treatment by Tamanu oil:

- Tamanu oil significantly reduces the production of pro-inflammatory cytokines IL-1 alpha. These data can be considered as predictive of a protective and an anti-inflammatory effect on the skin.

Etude ABICH - Octobre 2005
Vegetal Oils

**Chemical characteristics**
- **Acid value**: < 100 mg KOH/g
- **Saponification value**: 185 - 235 mg KOH/g
- **Peroxide value**: < 20 meq. O₂/kg
- **Antioxidant**: Solution of natural tocopherols 0.2%

**Bacteriological characteristics**
- **Aerobic bacteria**: < 100 cfu/g
- **Moulds - Yeasts**: < 10 cfu/g

**Physical characteristics**
- **Aspect, 18°C**: Liquid with solidification of resins
- **Aspect, 25°C**: Liquid
- **Colour**: Green to dark green
- **Odour**: Characteristic of the nut
- **Specific gravity, 20°C**: 0.910 - 0.960
- **Refractive index, 20°C**: 1.463 - 1.495
- **Solubility in water**: Insoluble
- **Solubility in oils**: Soluble
- **Solubility in ethanol**: Insoluble

**Packaging**
- **1 / 5 kg**: PE-HD jerrycan
- **25 kg**: PP bucket with total opening
- **190 kg**: Metallic drum with total opening and epoxyphenolic coating.
- **Packaging under modified atmosphere (Nitrogen)**.

**Storage**
- **Store in close container**.
- **Store at room temperature (20 - 25°C)**
- **Keep away from light and humidity**.
- **If possible, keep under nitrogen**.

**Stability**: 24 months before opening in the recommended storage conditions.

**Tamanu Original Label**

Calophyllum inophyllum is a species with several varieties that can be found in the Indian Ocean and in South-East Asia. Nevertheless, the interest of laboratories for this oil is born after the first clinical trials in Polynesia and France on the green Tamanu oil. The Tamanu Institute was created to organize the production sectors of the oil and to promote the true Tamanu oil from French Polynesia.
The Tamanu is considered as a sacred tree for a long time. It is planted in the «marae» (sacred sites). It was said that the gods were hiding in trees to watch humans without being seen. Its wood was used exclusively to produce totems, tiki and idols. Thanks to this protection, the Tamanu tree became widespread in Polynesia, where it makes magnificent forests overlooking the «Motu» (coral reefs). It is appreciated for its sweet-scented flowers and elegant foliage, planted along the streets.

With the Polynesian’s conversion to Christianity, the exploitation of these trees became intensive for their leaves, oil and fruits used in various fields.

In the 50s, the first scientific studies on the oil extracted from the nuts helped to highlight the exceptional healing properties: regenerative, healing, moisturizing, anti-bacterial, anti-parasitic and a surprising anti-inflammatory activity... Nowadays, the Tamanu or «ati» with many powers is still important in the local pharmacopoeia. It is known for its exceptional healing properties.
The Calophyllum inophyllum is widespread in most islands in French Polynesia. It seeks preferably coral sand and near the sea, its spread is being mainly due to its floating fruit, although it can also grow within the valleys. The Tamanu tree size is from 8 to 20m at maturity, and up to 25m. Its trunk is thick, bent, sometimes convoluted, measuring up to 1.50m in diameter. It is covered with rough black, hard and cracked bark. When 2 or 3 feet high, it gives large crooked branches. When it is cut, the bark exudes a sticky and opaque white to yellow latex. The foliage is dense, with a wingspan of up to 35m is often wider than its height. Leaves, large enough (10 to 17cm long, 5 to 8cm wide) are dark green, shiny, elliptical, opposite, tough, wavy margin. The nervures, prominent on both sides are parallel, very fine and very numerous. Its white flowers emit a pleasant and persistent fragance smelling like lime tree. They are arranged in clusters of 4 to 5 flowers with oblong shaped petals. The Tamanu can flower all year, but the maximal flowering comes in late spring and early summer, and at the end of autumn in the northern hemisphere. The fruits, rather numerous and arranged in clusters, are spherical and smooth drupes, measuring 3-4 cm in diameter. Mature, they consist of a smooth greenish yellow skin overlying a fine yellow edible pulp, looking like the apple. This pulp covers a spherical thin shell nut containing a light yellow kernel in which we can see the two cotyledons.

Cultivation

The Tamanu is fairly easy to grow by sowing seeds removed from their shell. Seedlings can be planted in 20 to 24 weeks after germination. The plants can then grow to 1 meter high and 60cm wide per year during the first 5 years. Then it grows much slower. Young Tamanu trees begin to flower, and therefore also the fruit, after 7 or 8 years. The kernel does not contain a lot of fresh oil extract. Mature, the nuts fall from the tree. They are picked by hand, ensuring the renewal of resources. Then, after prolonged drying, an abundant and valuable oil is extracted by cold pressing. Therefore it has a label «Original Tamanu», certified by the Interprofessional Union of Tamanu Oil, in French Polynesia. The culture of Tamanu, mainly for oil production, contributes widely to the local economy, providing a good income for local people.
**Composition of the dried seeds (indicative average values)**

- **Moisture**: 7.43%
- **Ashes**: 1.58%
- **Fats and resins**: 74.70%
- **Reducing sugars**: 3.36%
- **Starch**: 3.16%
- **Proteins**: 6.45%

Dried Tamanu seeds have a very high content in Oil. Only the Brazil nut contains a higher percentage of fat in the same order.

**Composition of the virgin oil (indicative average values)**

**Fatty acids (75 - 80%)**
- **Including**
  - Palmitic acid: 10 - 18%
  - Stearic acid: 13 - 20%
  - Oleic acid: 31 - 44%
  - Linoleic acid: 20 - 38%
  - Linolenic acid: 0.1 - 1%
  - Eicosanoic acid: 0.5 - 1.5%
  - Eicosenoic acid: 0.5 - 1.5%

**Resins (20 to 25% - 10% minimum)**

**Coumarins**
- Calophyllolide (C_{25}H_{22}O_{5})
- Inophyllolide (C_{25}H_{22}O_{5})
- Calophylic acid (C_{25}H_{26}O_{6})
- Tomentolide A (C_{25}H_{22}O_{5})
- Desoxo-12 Hydroxy-12 Inophyllolide (C_{25}H_{26}O_{5})
- Apetalolide (C_{26}H_{24}O_{5})
- Calaustraline (C_{25}H_{23}O_{5})
- Calafloride (C_{29}H_{36}O_{5})

**Alkyl-4 Coumarins**
- Alkyl-4 Coumarin (C_{24}H_{30}O_{5})
- Tomentolide B (C_{25}H_{22}O_{5})

**Xanthones**
- Calophylline B (C_{18}H_{14}O_{6})
- Mesuaxanthone (C_{13}H_{8}O_{5})
- Jacareubine (C_{18}H_{14}O_{6})
- Desoxy-6 jacareubine (C_{18}H_{14}O_{5})
- Dimethylallyltetrahydroxy xanthone (C_{18}H_{20}O_{6})

**Triterpenes**
- Friedeline (C_{30}H_{50}O)
- Canophyllal (C_{30}H_{48}O_{2})
- Canophyllol (C_{30}H_{50}O_{2})
- Canophylllic acid (C_{30}H_{50}O_{2})
- Inophyllic acid (C_{15}H_{26}O_{5})
- Calophenic acid (C_{15}H_{26}O_{5})
- Inophenic acid (C_{24}H_{34}O_{5})
- Inophylloidic acid (C_{25}H_{24}O_{5})

---

Date: 04/10/2011 - HTAM_FT_EN_V1
Oil:
Tamanu oil has always been used in traditional Polynesian medicine. Babies are still rubbed from head to toes to prevent mosquito bites, buttock redness or simply for massaging. This oil is highly recommended for its analgesic properties especially in the case of sciatica, lumbago and rheumatism. It also contains amazing healing properties frequently used for skin infections, even the most severe such as ulcers or pressure sores of all kinds and in treating burns, and post-operative wounds, to name a few of them. Well known for its regenerating properties on the skin and cells, Tamanu oil is used in modern cosmetics where its applications are endless (anti-wrinkle and anti-aging creams, soothing creams, solar formulations, anti-acneic creams, after-shave). In addition, its moisturizing, anti-oxidant and anti-radical properties make of this product a «do everything» product, especially effective and safe.

Fruit:
- Against mosquito (burned shells),
- Crafts.

Flowers:
- Decoration,
- Perfume.

Wood:
- Crafts,
- Building,
- Boats.