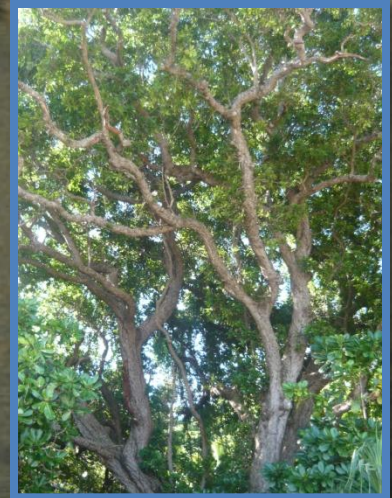


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*Discover the far-points  
of the Globe ...*



Torres Islands

Banks Islands

Espiritu Santo

Ambrym

Maewo

Pentecost

Malekula

Ambrym

Epi

Efate

Erromango

Tanna

Aneityum



*Discover the land of*  
**VANUATU**



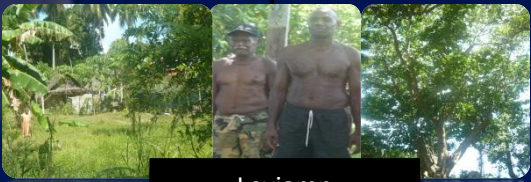
Norsup Airport



Lakatoro



Wirwi  
Chief Timoti (center)



Leviamp  
Chief Tuptik (on right)

# MALAKULA

(NORTH ISLAND)

# MALAKULA

(SOUTH ISLAND)



Lamap



Maskelyn



# EFATE



Joseph Jacobé Drying Station for nuts that do not arrive dried and Location of processing plant.

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*Discover the path  
less traveled...*



# *Discover it's culture and people...*



# *Discover Tamanu*

- ❖ Division: Magnoliophyta
- ❖ Class: Magnoliopsida
- ❖ Order: Malpighiales
- ❖ Family: Clusiaceae
- ❖ Subfamily: Kiemeyeroideae
- ❖ Tribe: Calophylleae
- ❖ Genus: Calophyllum
- ❖ Species: Calophyllum Inophyllum
- ❖ INCI Name: Calophyllum Tacamahaca Seed Oil / Calophyllum Inophyllum Seed Oil





# Discover Tamanu



The tree is low branching, slow growing, it reaches from 20 to 30 m in height. Flowering can occur all year around.

The fruit is a round, green drupe reaching 2 to 4 cm in diameter and having a single large seed. When ripe the fruit is wrinkled and its color varies from yellow to brownish red.

The binomial name is *Calophyllum Inophyllum* or *Callphyllum Tacamahaca*. It is called Nambakura in Bislama, Vanutu's National Language; Takamaka in Seychelles and Mascareignes, Foraha in Madagascar, Ball nut in Australia, Kamani in Hawaii, Tamanu in Tahiti and M'trondo in Mayotte.

# Discover the Tamanu Harvest Cycle

Fruit falls to the ground after ripen.

Cross Section of the ripen fruit. Not ready for harvest, can not extract seed.

The Fruit has to dry naturally to remove the nut. The nut has to dry naturally to release the seed.

Seed is released naturally and the nut can be cracked for removal.

The smooth surface of the nut shell is proof that seed was ready to be released.



# Discover the Tamanu Process

## Wild Harvest Organic



Step 1:  
Identification  
of Trees &  
Location



Step 2:  
Identification  
of  
Surroundings



Step 3:  
Observation  
of Fallen Fruit  
& Collection  
of Nuts



Step 4:  
Collection of  
Nuts without  
dehusking

Phase 1

# Discover the Tamanu Process

## Wild Harvest Organic



Step 5:  
Collection of  
Dehusk  
Tamanu Seeds



Step 6:  
Sun Drying  
Tamanu Seeds



Step 8:  
Collection of  
Sun Dried  
Seeds



Step 9:  
Transport to  
Efate, Port  
Vila for  
Processing

Phase 2

# Discover the Tamanu Process

Oil is expressed mechanically.

Seed goes into hopper.



Unusable solids come out on this side.

1st phase oil is expressed.

**Step 1:  
Crushing Sun  
Dried Tamanu  
Seed**

Crushing approximately 25 bags a day at 60 kg per crusher.  
Two are available.

# Discover the Tamanu Process

Cream  
Settle to bottom

Clear Tamanu Oil  
Decanted and run  
through the filter  
press.



**Step 2: A Two  
weeks Tamanu  
Oil Separation  
Period**

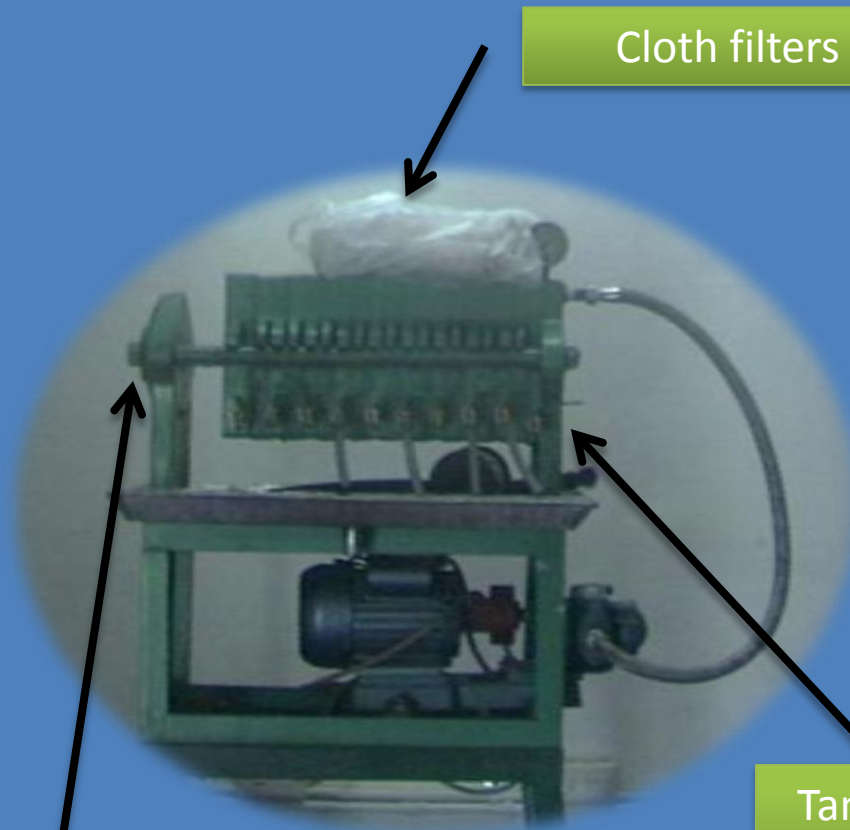
# Discover the Tamanu Process

**Step 3: Filter  
Press Tamanu  
Oil**

Filtered oil

Cloth filters

Tamanu Oil sent to  
storage tank



# Discover the Tamanu Process

## Step 4: Storage



Storage Tank 2

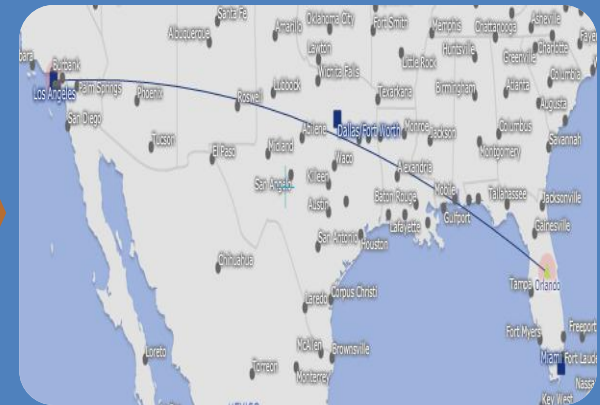
Storage Tank 1

Storage tanks holds 1100 liters. Oil is filter through bag filters into containers.



# Discover the Tamanu Process

## Step 5: Packaging and Shipping to us



Island of Malakua by  
boat to Efate

Port Villa, Efate  
by air to Sydney,  
Australia

Sydney, Australia  
to California,  
USA

California to  
Florida

We do the last step of processing, filtering, packaging and analytical testing.



# Discover Tamanu's Chemistry

Some functional principles found in the oil
Calophylloide
Calophyllic acid
Canophyllal
Canophyllol
Canophyllic acid
Mesuaxanthone
Euxanthone

General Lipid Composition	%
Neutral Lipids	92.00
Glycolipids	6.40
Phospholipids	1.60

Fatty Acid Profile	%
Palmitic	14.00
Stearic	15.00
Oleic	46.00
Linoleic	22.00

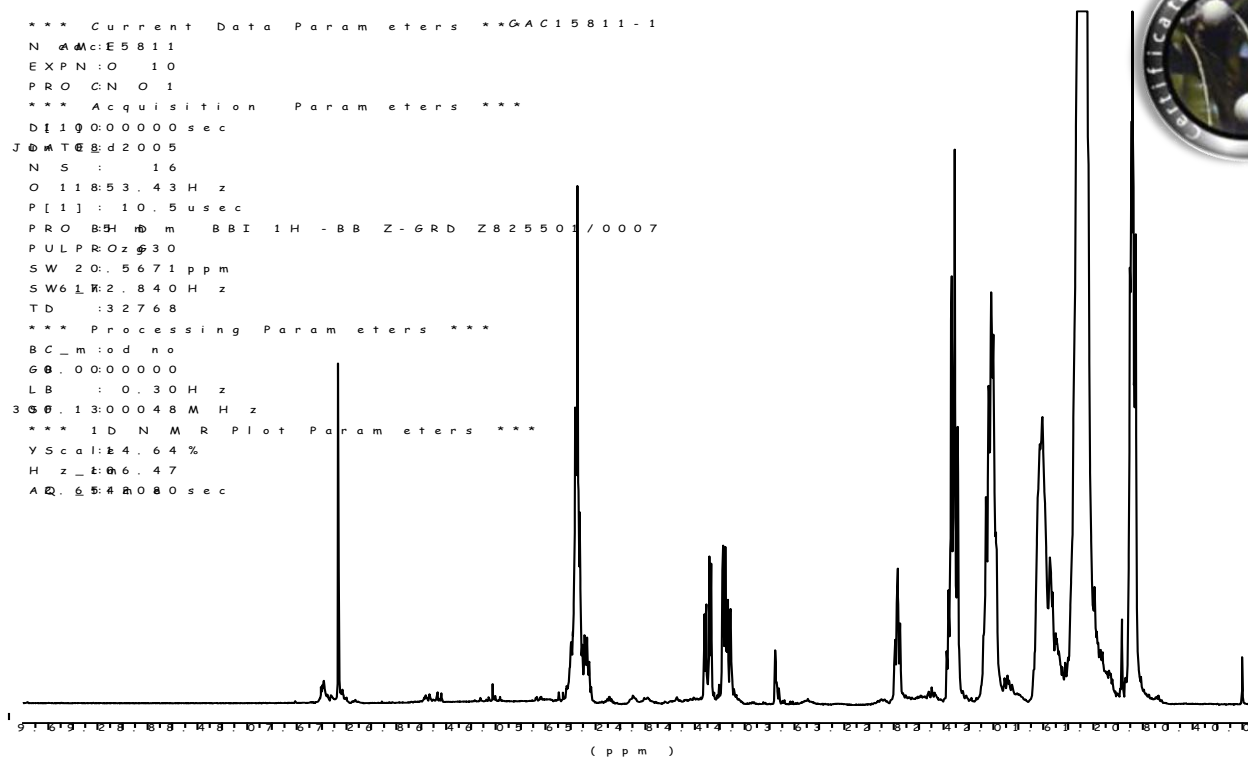
# Discover Tamanu's Authenticity

## H-NMR



```

*** Current Data Parameters **GAC15811-1
NAME: E5811
EXPNO: 010
PROCNO: 01
*** Acquisition Parameters ***
DE: 190.000000 sec
JMOD: 8: d2005
NS: 16
O1: 11853.43 Hz
P[1]: 10.5 usec
PROBHD: 5 mm BBI 1H - BB Z - GRD Z825502 / 0007
PULPROG: zg30
SWH: 20156.71 ppm
SFO: 299.624000 MHz
TD: 32768
*** Processing Parameters ***
BC: mod no
GB: 00000000
LB: 0.30 Hz
GB: 1300048 MHz
*** 1D NMR Plot Parameters ***
YScale: 4.64 %
Hz: 6.47
AQ: 654.8080 sec
    
```



- Test the characteristics patterns of triglycerides and 4 typical signal of Tamanu Oil (structures unknown)

Tamanu Oil Test provided by Spectral Service - GmbH

## *Discover Tamanu's Safety*

- ❖ AMA Laboratories Inc
- ❖ 50 Human Subject Repeat Insult Patch Test
- ❖ 100 % Virgin Tamanu Oil
- ❖ Non-irritating and Non sensitizing
- ❖ All subject recorded as showing  
“No Evidence of Any Effect”



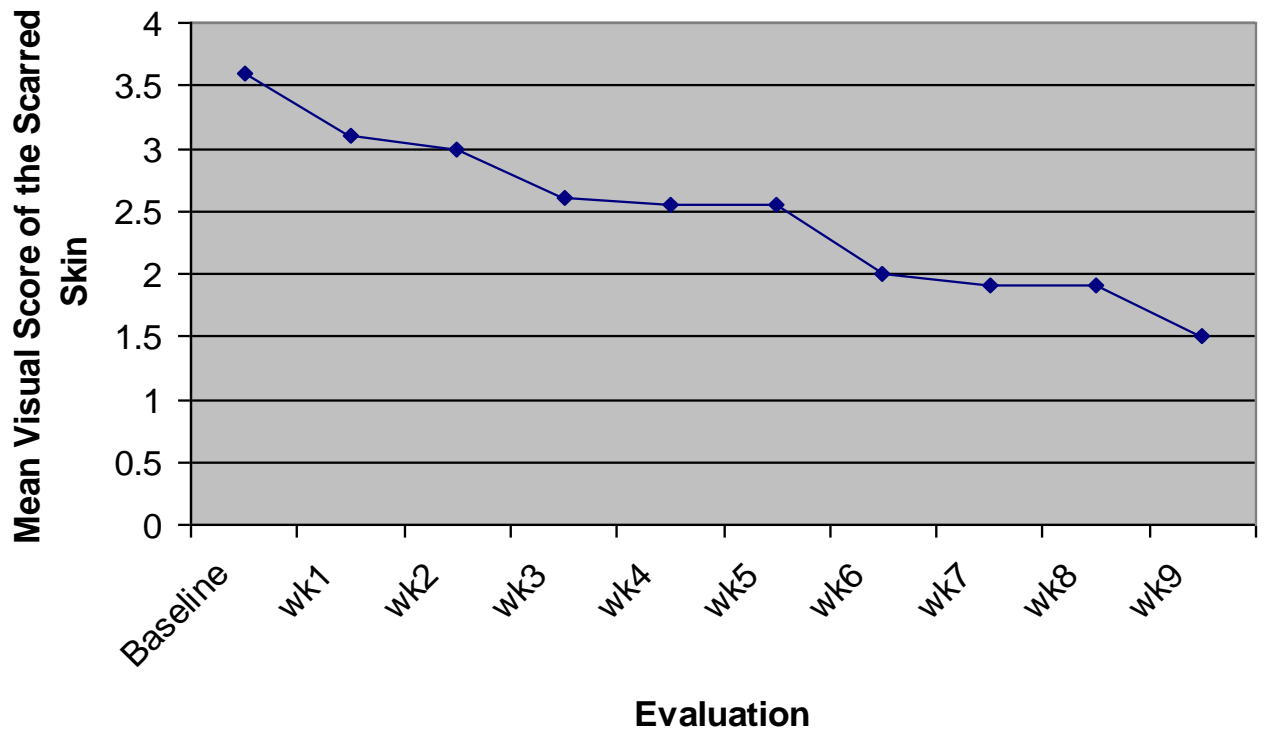
## *Discover the Healing of Tamanu*

- ❖ Six subjects with visually obvious, aged scar (1 year or more).
- ❖ Visual rating of scar appearance: color, roughness, difference from normal surrounding skin, scar size measurements.
- ❖ Quantitative measurements: scar length and scar width relative to baseline value.
- ❖ Product applied twice daily for 9 weeks
- ❖ 100% Tamanu Oil (Pure Virgin)

# Discover the Science

## Preliminary Scar Study

Effect of Tamanu Oil on Aged Scars

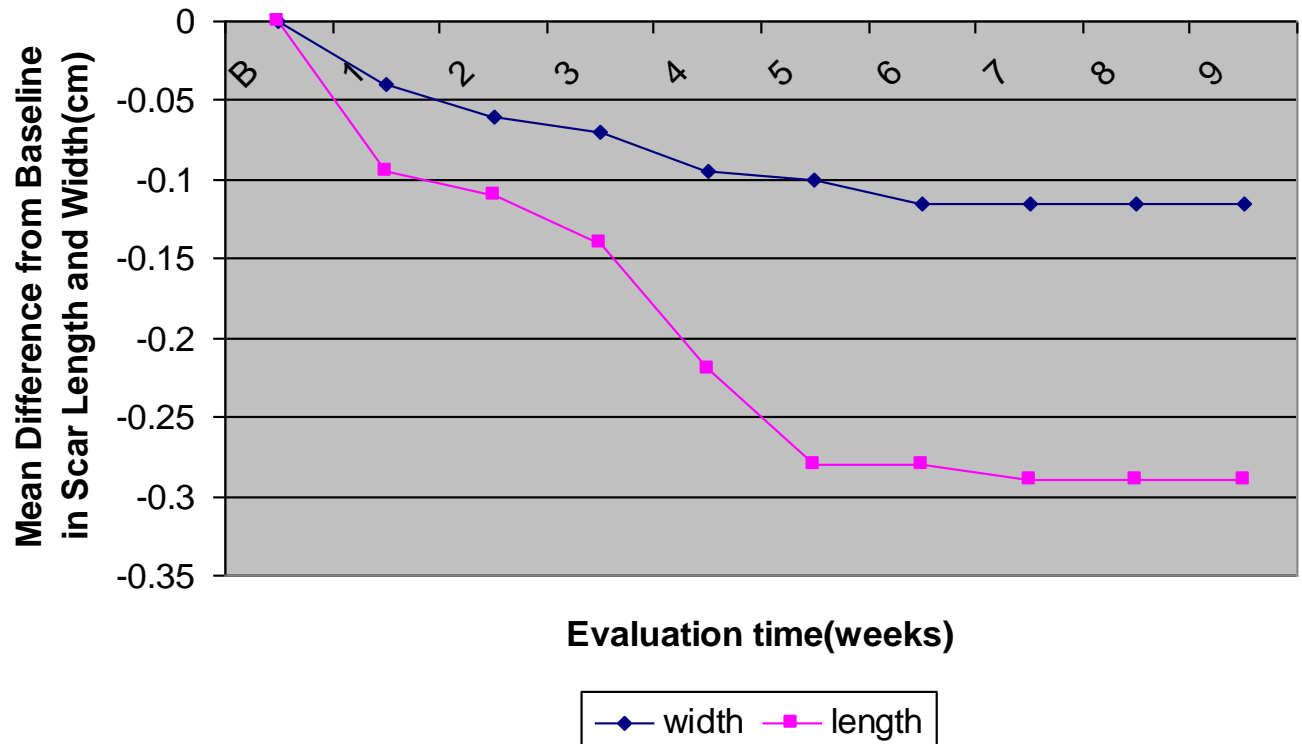


Scar study results conducted by  
BioScience Laboratories

# Discover the Science

## Preliminary Scar Study

### Effect of Tamanu oil on scar length and width



Scar study results conducted by  
BioScience Laboratories

# Discover the Science

## Preliminary Scar Study

Tamanu Oil (Pure Virgin) was applied 2 times daily for 9 weeks.



Before 9 Weeks  
Initial Picture



After 9 Weeks  
Final Picture

**Scar study results  
conducted by  
BioScience Laboratories**



# Discover the Science

5 Comparative samples:

- 3 Emulsion concentrations
- A placebo
- Neat Oil

❖ Skin Hydration

❖ Skin Firmness

❖ Skin Elasticity

❖ Skin Smoothness

❖ Anti-Wrinkling

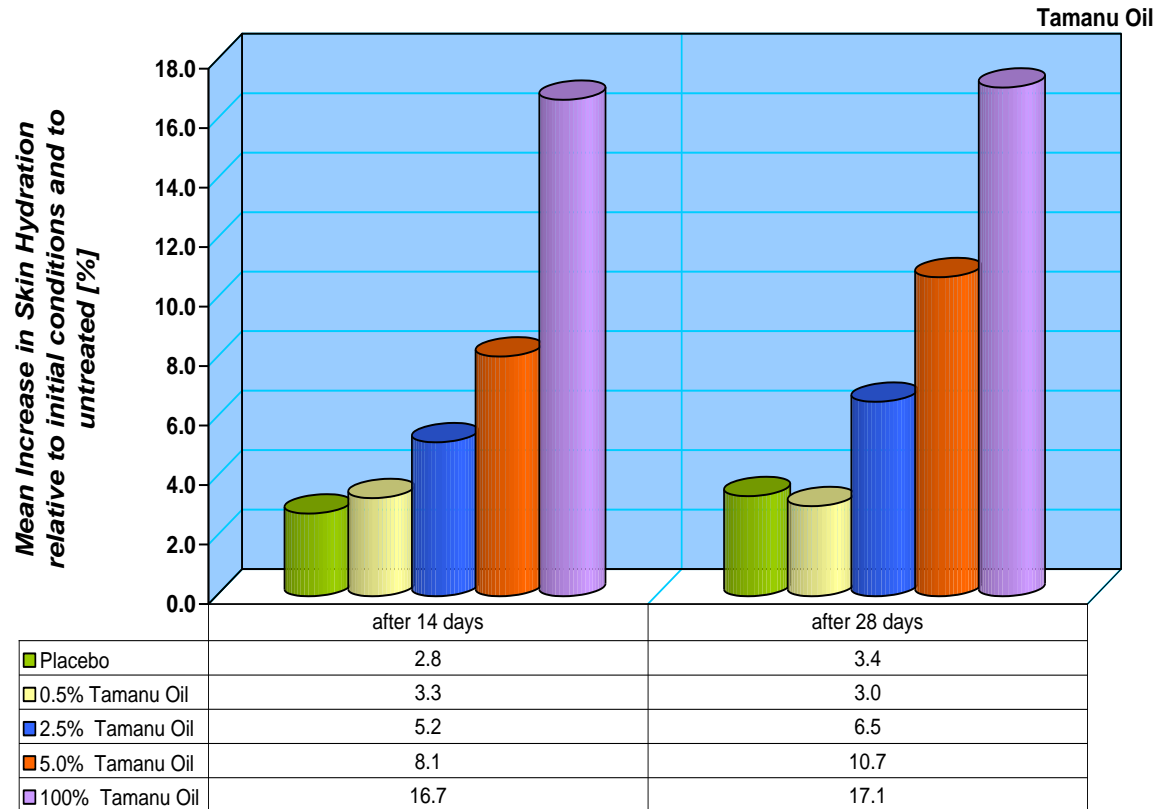


Cosmetic  
End Points

- Product applied twice daily for 28 days.
- 20 subject: Average age 44.8 years.
- Study conducted by Dermal Consult GmbH

# Discover the Science

**Increase in Skin Hydration relative to initial conditions and to untreated**

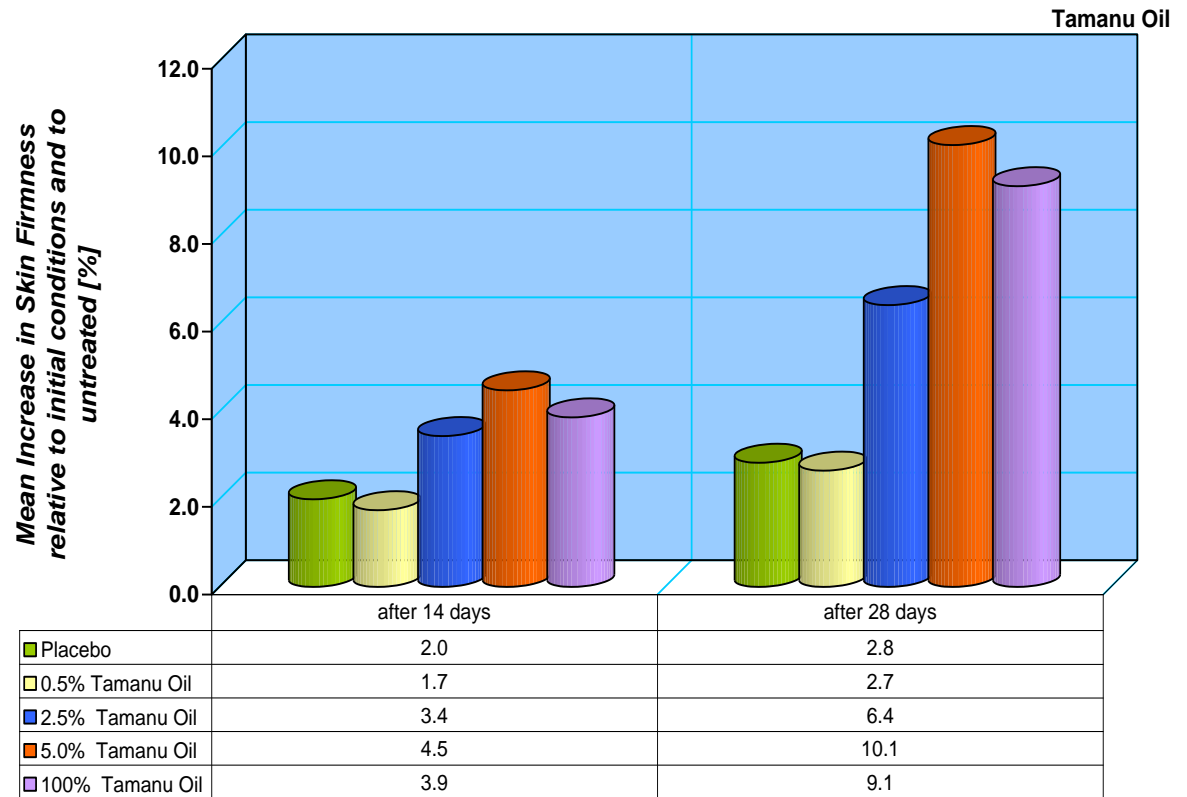


**SKIN  
HYDRATION**

- ❖ Hydration state of the stratum corneum assessed by measuring the electrical capacitance of the skin surface.
- ❖ 5 Measurements performed on each test area using the Corneometer CM 825 PC.

# Discover the Science

**Increase in Skin Firmness relative to initial conditions and to untreated**

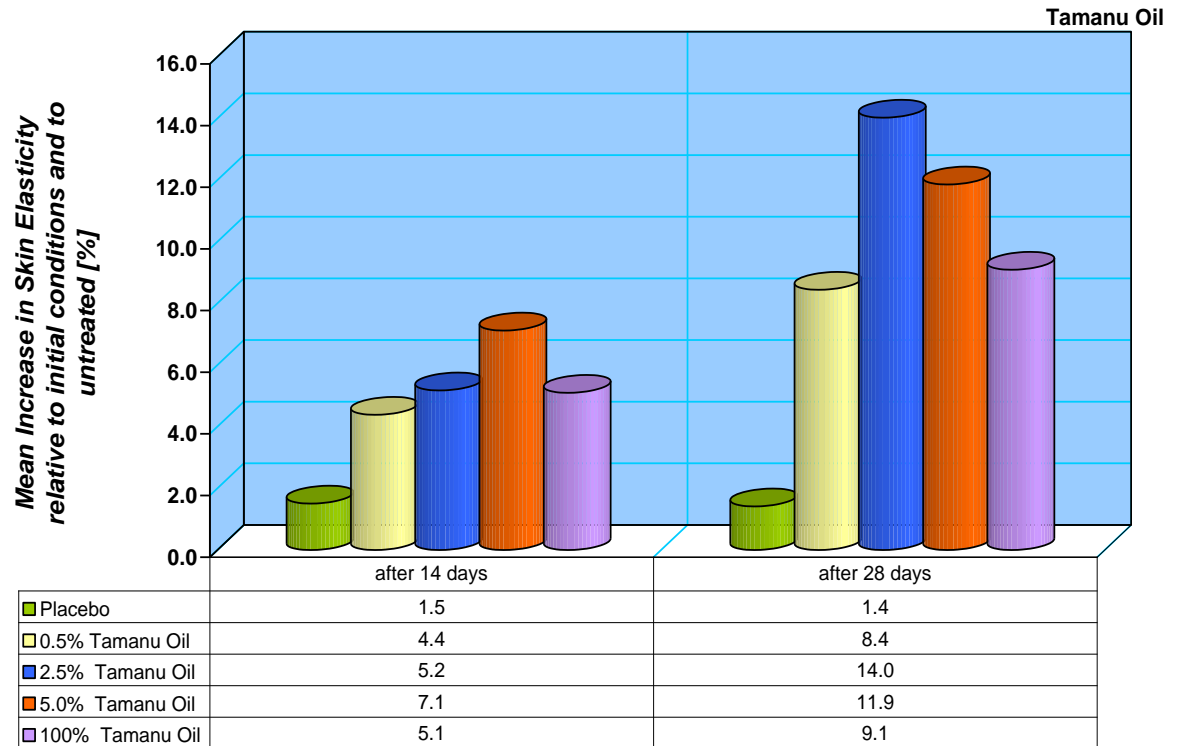


## SKIN FIRMNESS

- ❖ The skin's biomechanical properties are assessed using the Cutometer SEM 575.
- ❖ 5 Measurements are based on a 1 sec (450 mbar vacuum) followed by 1 sec retraction; penetration depth of skin recorded optically.
- ❖ Skin firmness assessed by measuring are below the maximum envelope.

# Discover the Science

**Increase in Skin Elasticity relative to initial conditions and to untreated**

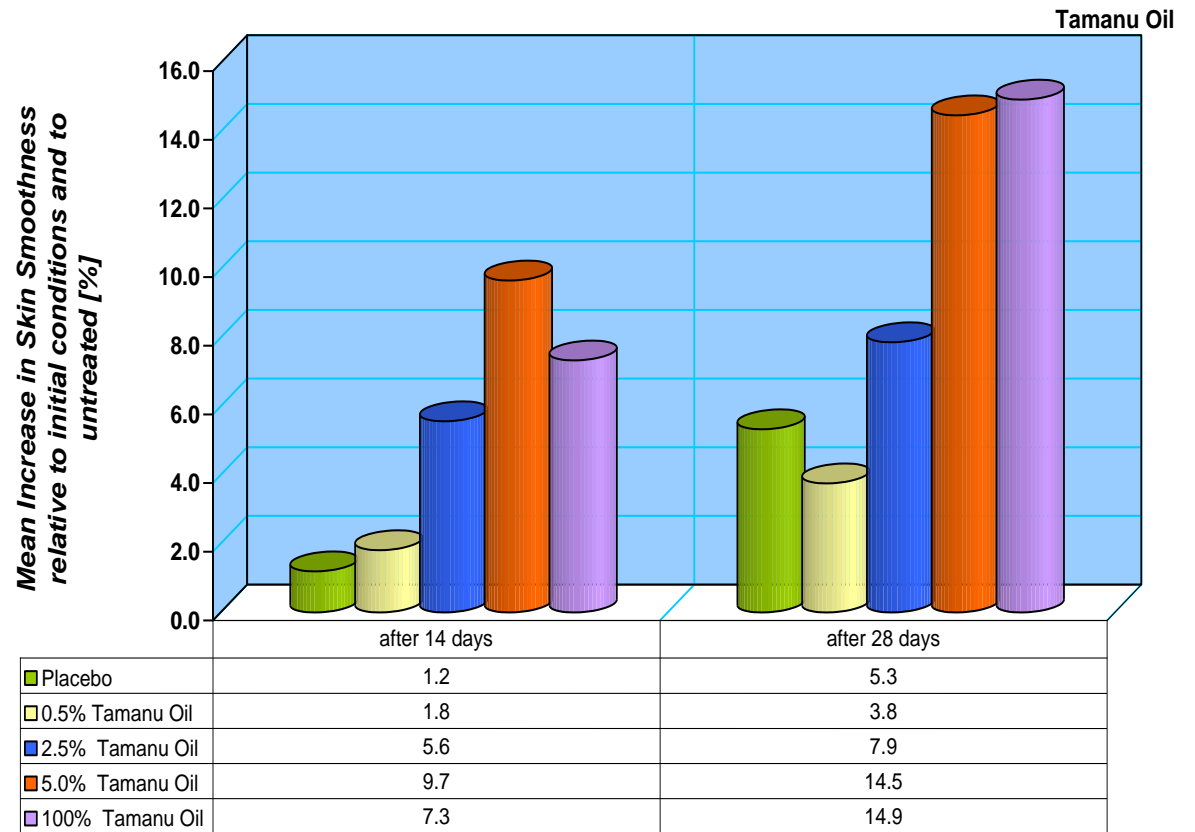


## SKIN ELASTICITY

- ❖ The skin's biomechanical properties are assessed using the Cutometer SEM 575
- ❖ Measurements are based on a 1 sec (450 mbar vacuum) followed by 1 sec retraction; penetration depth of skin recorded optically.
- ❖ Skin elasticity is assessed by the ratio: Area between min and max envelope.

# Discover the Science

**Increase in Skin Smoothness relative to initial conditions and to untreated**

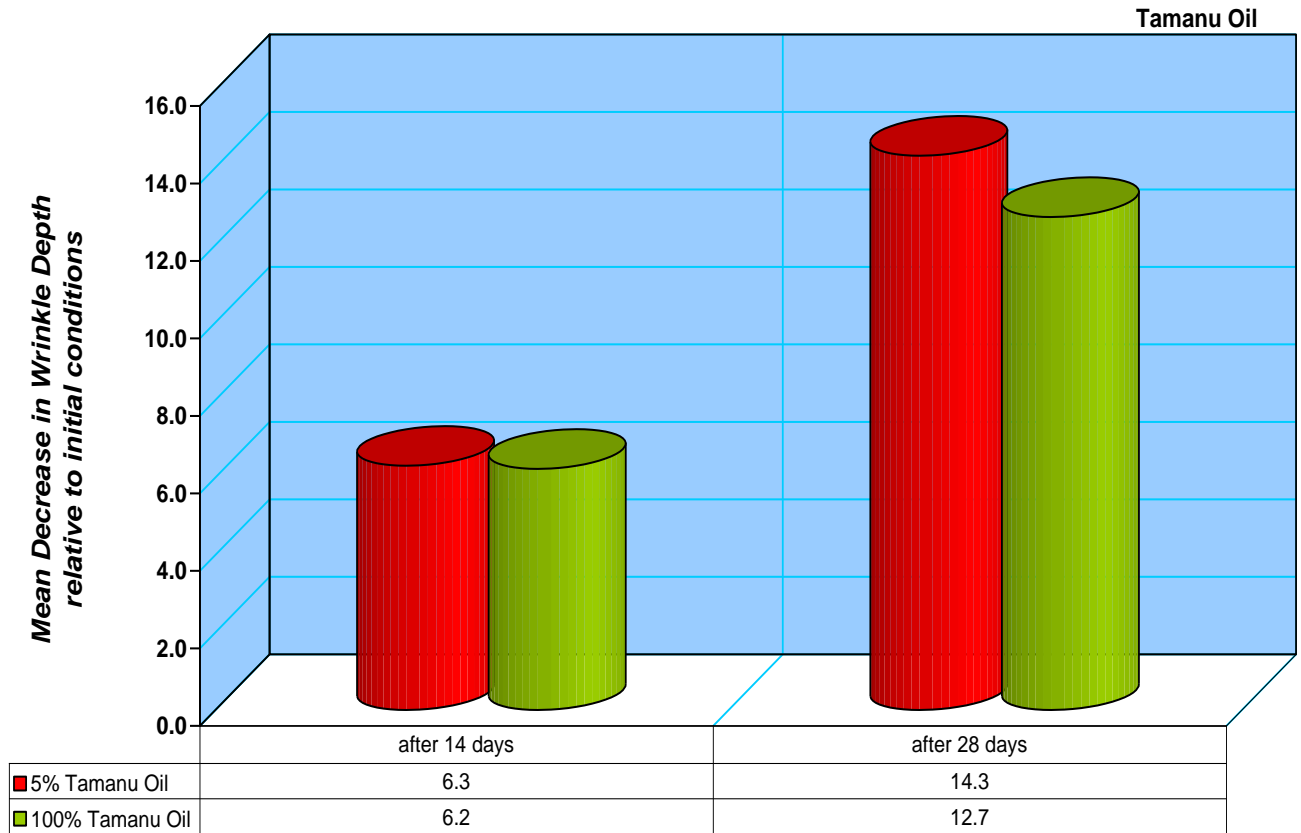


**SKIN  
SMOOTHNESS**

- ❖ Assessed utilizing PRIMOS (Phase Shifting rapid in vivo measurements of the skin) a non contact measurement of the micro-topography of human skin.
- ❖ Based on the technology of active imaging.

# Discover the Science

Decrease in Wrinkle Depth relative to initial conditions



**WRINKLE  
DEBT  
REDUCTION**

- ❖ Utilizing PRIMOS (Phase Shifting rapid in vivo measurements of the skin).
- ❖ The Crow's Feet area is recorded as a 3D topographical image.
- ❖ Wrinkle depth assessed by the maximum vertical distance from the highest peak to the lowest valley of five segments of equal length(average from 10 parallel cuts).
- ❖ 2 concentrations: 5% and 100%.

# Discover the Science

## Zone of Inhibition

Test Material	LOT #	P.acnes
Tamanu Oil (Pure Virgin)	07G41	3 mm
Tamanu Tattoo	4045F	8 mm

## Kill Rate

E. Coli inoculum level =  $1.44 \times 10^8$   
 S. Aureus inoculum level =  $1.67 \times 10^8$   
 \* denotes Total Kill

Test Material	E. coli 6h	E. coli 24h	S. aureus 6h	S. Aureus 24h
Tamanu oil / Ethoxydiglycol	6.16*	6.16*	6.22*	6.22*
Tamanu Tattoo Care Cream	2.03	5.80*	3.33	5.67*
Tamanu oil Pure	0.95	2.99*	3.09	5.67*

**ANTI-  
BACTERIAL  
PROPERTIES**

# Discover the Possibility

Cicatrizing agent	Promotes the formation of new tissue Scar healing and skin repair
Anti-inflammatory	Reduces redness and swelling of irritated skin
Anti-bacterial	Attack skin infections, reduces spots/pimples, smoothes skin
Anti-fungal	Attacks yeast and ring-worm infections redness and itching
Anti-oxidant	Soaks up free radicals preventing cellular damage and premature ageing
Mild/ non-irritant	Ideal for all skincare application including sensitive skin and baby
Natural Product	Sustainable/ renewable



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**TANKU TO MAS**

