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# Internal Stabilization of Oils and Butters

A natural technique that makes oils and butters more resistant to oxidation and degradation - resulting in longer shelf life for cosmetic products.

[www.icsc.dk](http://www.icsc.dk)

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# Internal Stabilization

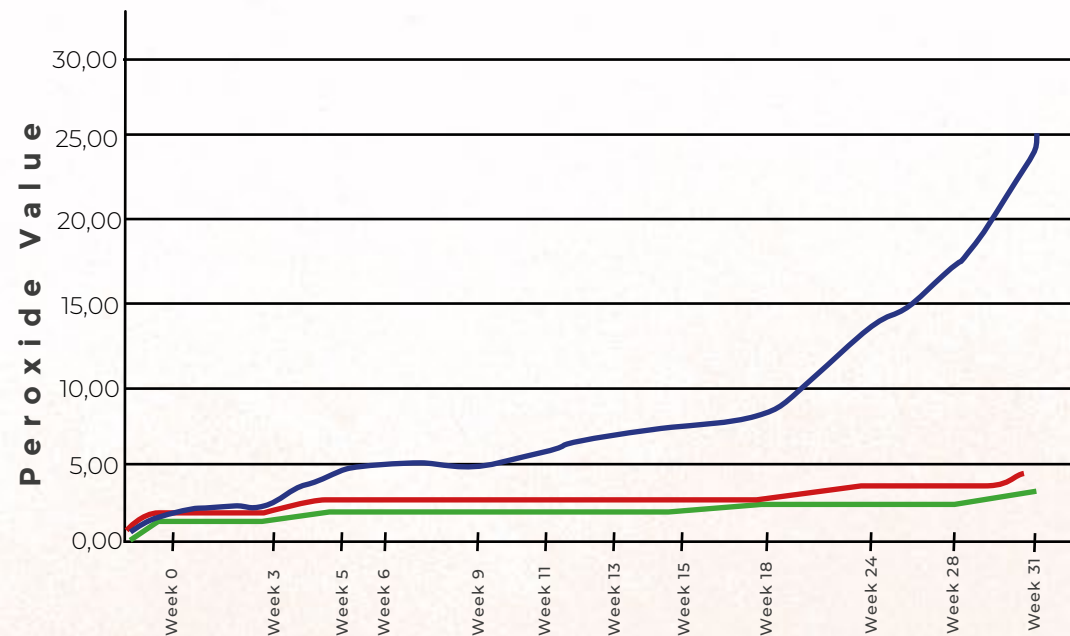
## Core Benefits:

- No degradation products in the formulations
- Clean lipids avoiding flocculation problems
- Providing antimicrobial properties and other benefits
- Cost benefits avoiding external addition of antioxidants and antimicrobial agents.

**Shelf Life - Peroxide Value of Shea Butter Stored at 50° C**

- Shea Butter
- Shea Butter I.S. I
- Shea Butter I.S. II

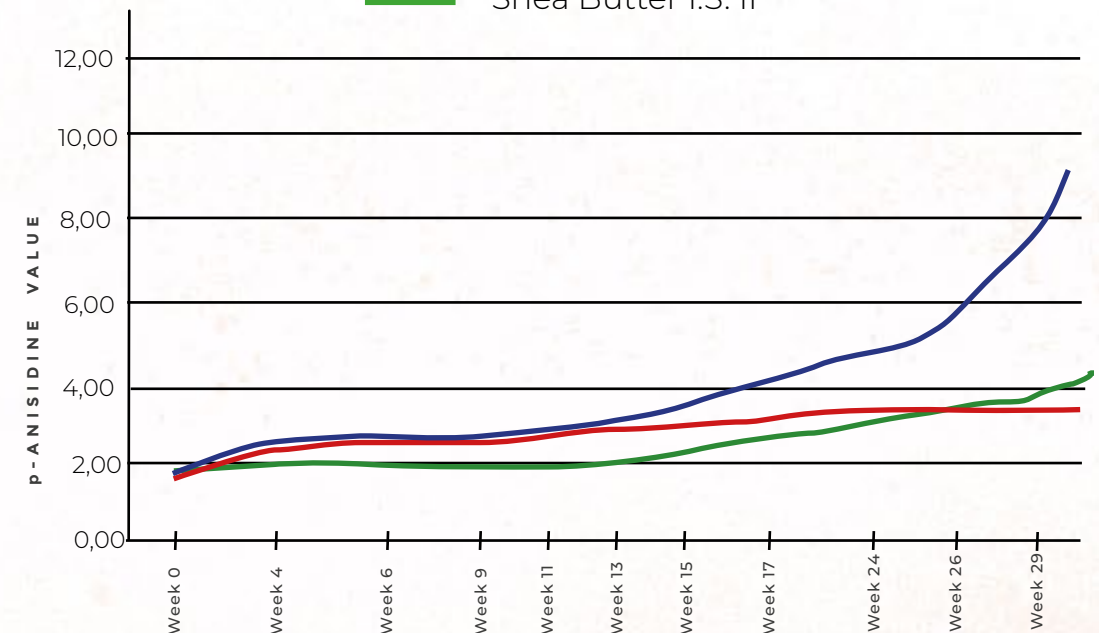
**Conclusion:**  
ICSC's Internally Stabilized Shea Butter is extremely stable.



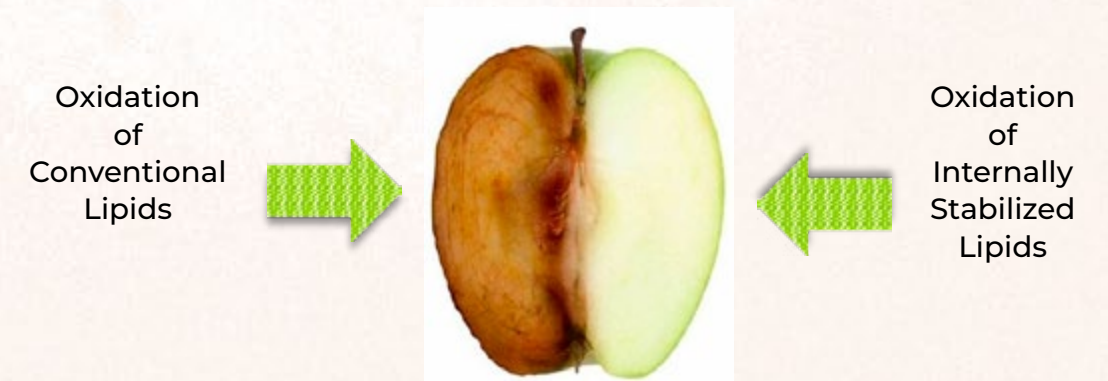
**NO DEGRADATION DUE TO OXIDATION  
IN YOUR INGREDIENTS**

**p-Anisidine Vale if Shea Butter stored at 50° C**

- Shea Butter
- Shea Butter I.S. I
- Shea Butter I.S. II



**Conclusion:**  
ICSC's Internally Stabilized Shea Butter is extremely stable.



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# Internal Stabilization

The researchers at International Cosmetics Science Centre (ICSC) have developed the natural and groundbreaking technique to make all vegetable oils and butters highly resistant to oxidation and general degradation. This methodology stabilizes the oils and butters internally, using the natural antioxidant properties of rosemary. This unique proprietary method has been coined as “Internal Stabilization” (I.S.)

It is the result of a fully controlled production process. Right from the selection of the seeds through the expelling, protecting the oil from any heat damage and finally during the refining process, where conditions are chosen that minimize the loss of the natural antioxidants present in the oil. We also add rosemary during the production process to improve the protection of the oil during the critical production steps.

Totally arresting oxidation and thus avoiding development of degradation products, which react with the skin. This also avoids flocculation problems in formulations.

Using in-house developed processes, oils & exotic butters can be ‘Internally Stabilized’ using natural herb extracts

The internally stabilized products have no additional odor & flavor.



## Factors Affecting Lipid Stability

- **Heat**
- **Water**
- **Oxygen**
- **Light**
- **Enzymes**
- **Metal**



# Factors Beyond Our Control

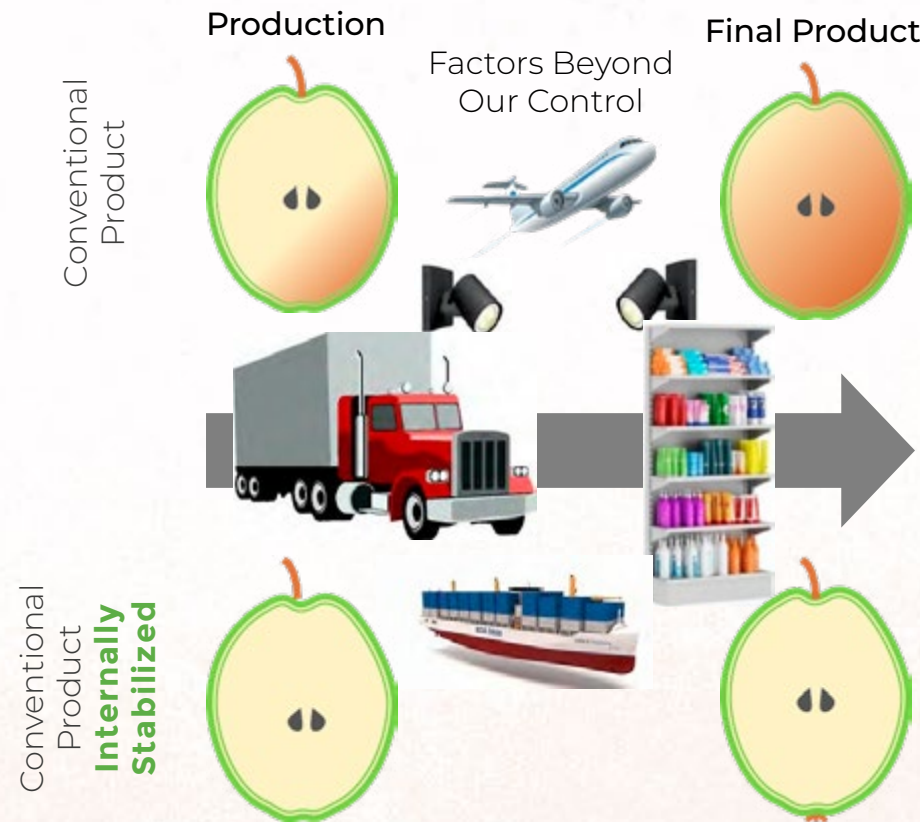
Other factors that also affect the stability of your final product are:

- Transportation
- Location in the store (stand level)
- Proximity to above light and heat (in the store)

Our internal stabilization technique also protects your product from these factors, prolonging the shelf life of your final products.

## Oxidative Problems Solved in Cosmeceuticals

### Oxidative Hygiene Control Through Internal Stabilization



## Rosemary Extract - A Powerful Natural Antioxidant

The antioxidant properties of the rosemary extracts come from high content of diterpenes namely, Carnosic Acid, Carnasol, Epirosmanol, Isorosmanol and others.

A flavonoid Luteolin found in rosemary leaves also has antioxidant properties.

The antioxidants from rosemary extract act as:

- Inhibitors of lipid peroxidation
- Metal chelators
- Active scavengers for superoxide radicals
- Anti-microbial agents

## Rosemary Extract - Antimicrobial Activity

Inhibition of the growth of 6 strains of bacteria and yeasts by Carnosol and Ursolic acid (from Rosemary extracts) in comparison with BHA and BHT have been studied by Agricultural and Food Bacteriology Research Division, Dept. of Agriculture for N. Ireland and The Queen's University of Belfast.

The 6 micro-organisms used were:

- Staphylococcus aureus 686
- Lactobacillus brevis 534
- Rhodotorula glutinis 157
- Escherichia coli 330
- Pseudomonas fluorescens 695
- Kluyveromyces bulgaricus 213

Both Carnosol and Ursolic acid inhibited the microbial growth for all the 6 kinds of bacteria – Carnosol was the most effective

## Rosemary Extract - Antimicrobial Effect

### Natural Danox R-3204 vs Chemical Preservatives

Test Method – Ph. Eur. 4th Ed. (2002) 5.1.3

Class of chemical preservative – aliphatic paraben's in phenoxyethanol

Microbes	Initial Count / ml	After 2 Days	After 7 Days	After 14 Days	After 28 Days
Pseudomonas aeruginosa	$6.3 \times 10^5$	$< 1 \times 10^1$ $190 \times 10^1$	$< 1 \times 10^1$ $< 1 \times 10^1$	$< 1 \times 10^1$ $< 1 \times 10^1$	$< 1 \times 10^1$ $< 1 \times 10^1$
Staphylococcus aureus	$4.2 \times 10^6$	$< 1 \times 10^1$ $< 1 \times 10^1$	$< 1 \times 10^1$ $< 1 \times 10^1$	$< 1 \times 10^1$ $< 1 \times 10^1$	$< 1 \times 10^1$ $< 1 \times 10^1$
Candida albicans	$4.8 \times 10^6$	$150 \times 10^3$ $< 1 \times 10^1$	$320 \times 10^3$ $< 1 \times 10^1$	$600 \times 10^1$ $< 1 \times 10^1$	$740 \times 10^1$ $< 1 \times 10^1$
Aspergillus niger	$1.4 \times 10^5$	$< 64 \times 10^1$ $< 1 \times 10^1$	$< 80 \times 10^1$ $< 1 \times 10^1$	$27 \times 10^1$ $< 1 \times 10^1$	$38 \times 10^1$ $< 1 \times 10^1$

Results with Danox R-3204

Results with chemical preservatives

Natural Danox R-3204 gives an antimicrobial protection similar to chemical preservatives, but slightly less potent against fungi



## The Rancimat Test

The Internally Stabilized products have very high oxidative stability and no additional odour or flavour.

This is made obvious by performing the Rancimat test. In the Rancimat test, the oil or butter in question is stressed by applying elevated temperatures and air bubbling.

The time before the samples get rancid is the Rancimat Value and the ratio of the values from the protected and unprotected samples is called the "Protection Factor".

The Protection Factor multiplied by the actual temperature and divided by 20 (ambient) is called the "Life Extension", which again is the factor by which the shelf life will be extended.



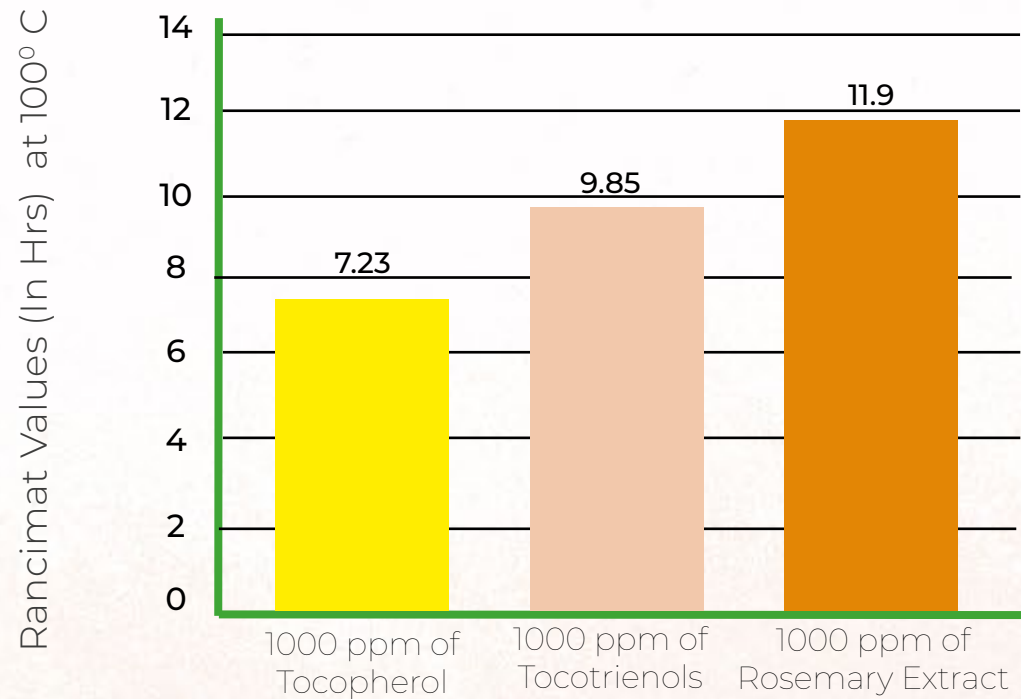
# Better than other Antioxidants

Until ICSC developed the method of "Internal Stabilization" I.S., the most common way of avoiding oxidation was external addition of antioxidants to the oils and butters by simple mixing. Such additions often required heating, homogenization, extra labor, handling of powders, etc. All of these can be avoided through ICSC's Internal Stabilization.

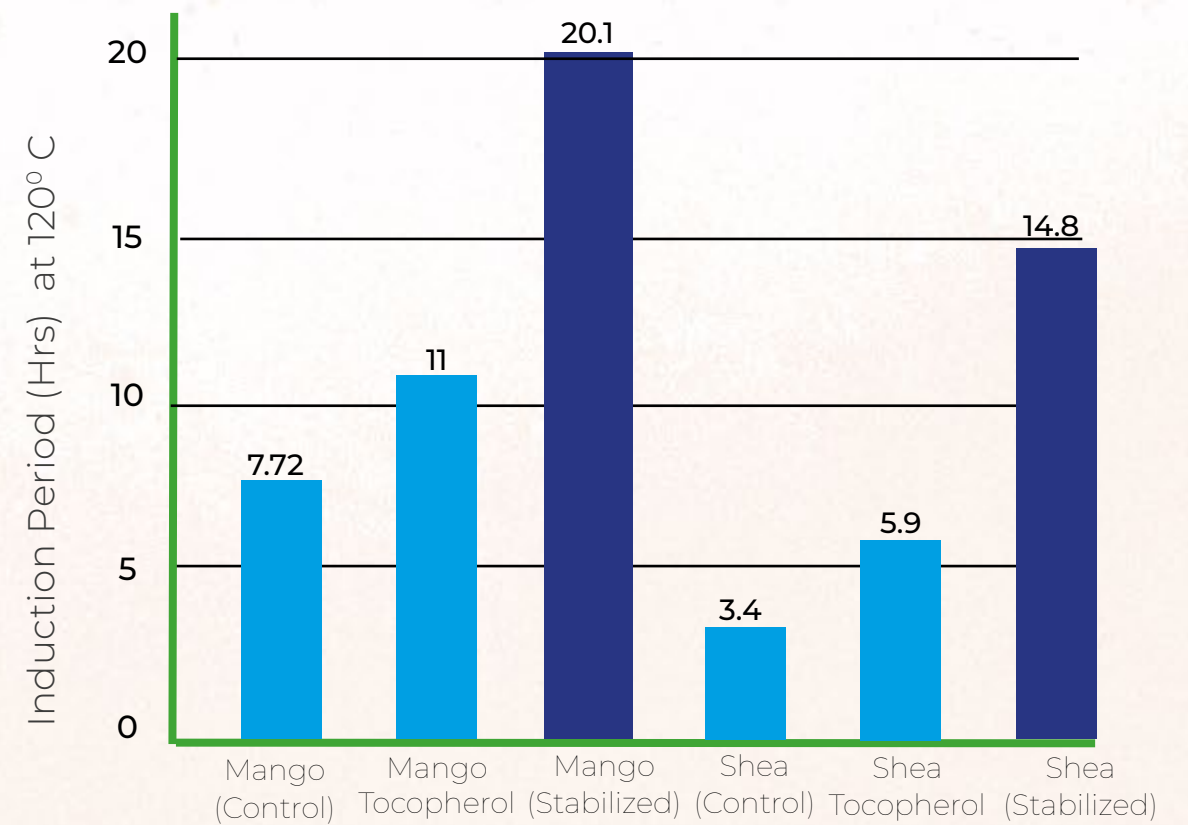
ICSC's research center has always been devoted to greener technology and has always aimed at avoiding chemicals in the processing of their oils and butters.

The following charts will show you that our I.S. technology and our specially designed Rosemary extracts can enhance the shelf life of your cosmetic products 20 to 60 times.

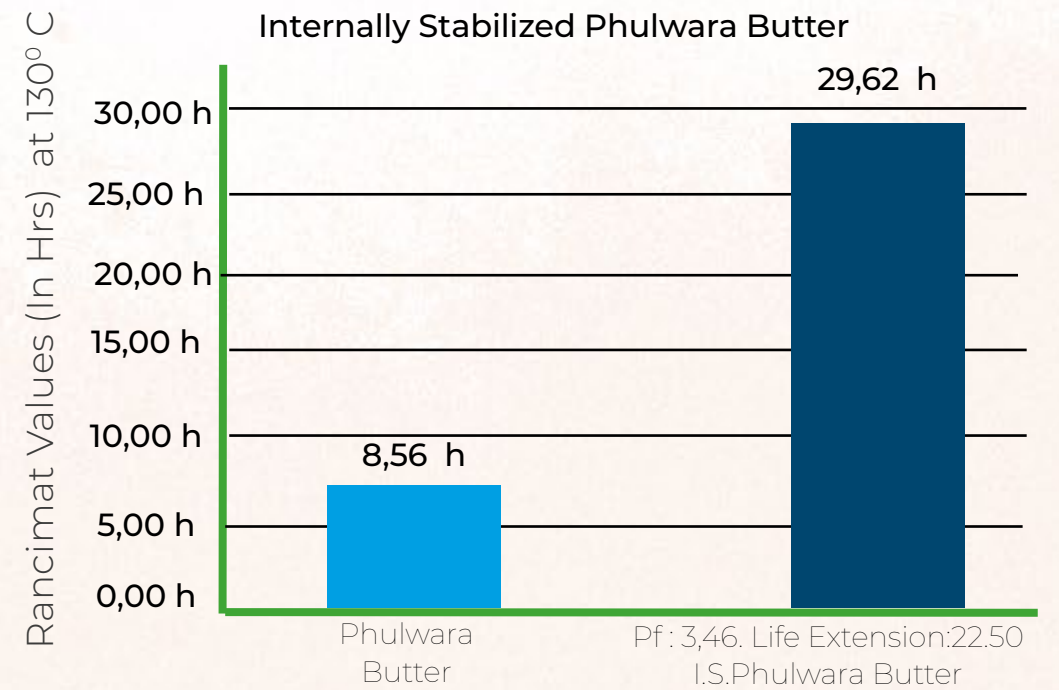
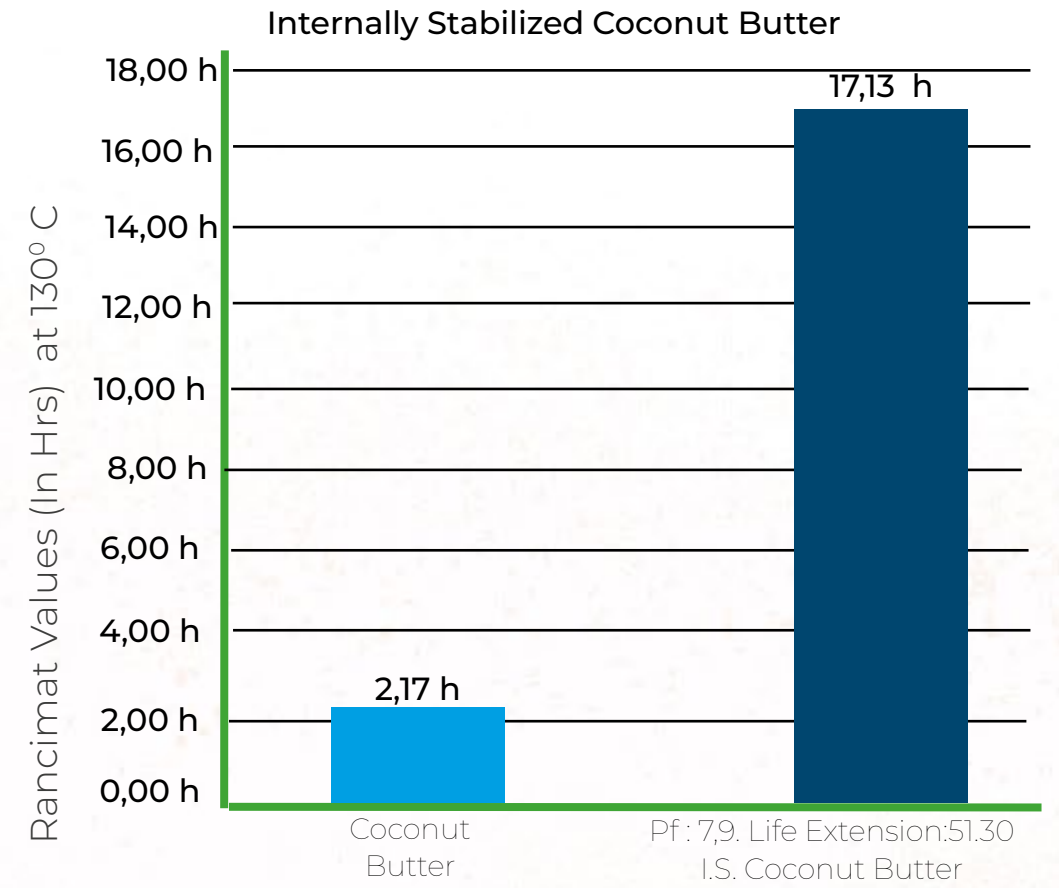
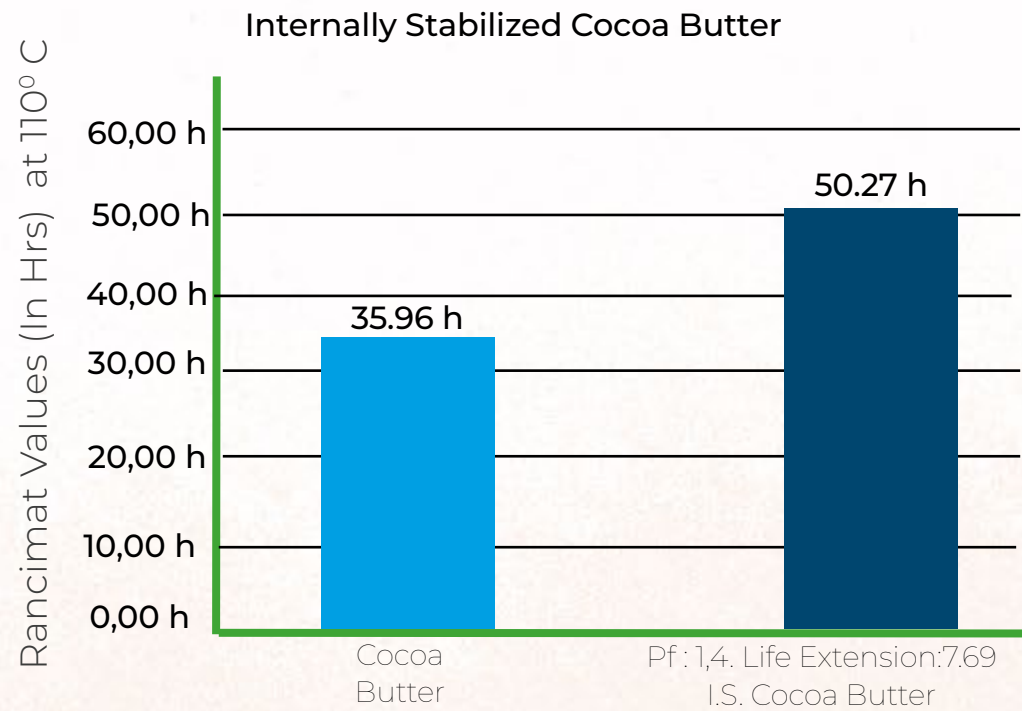
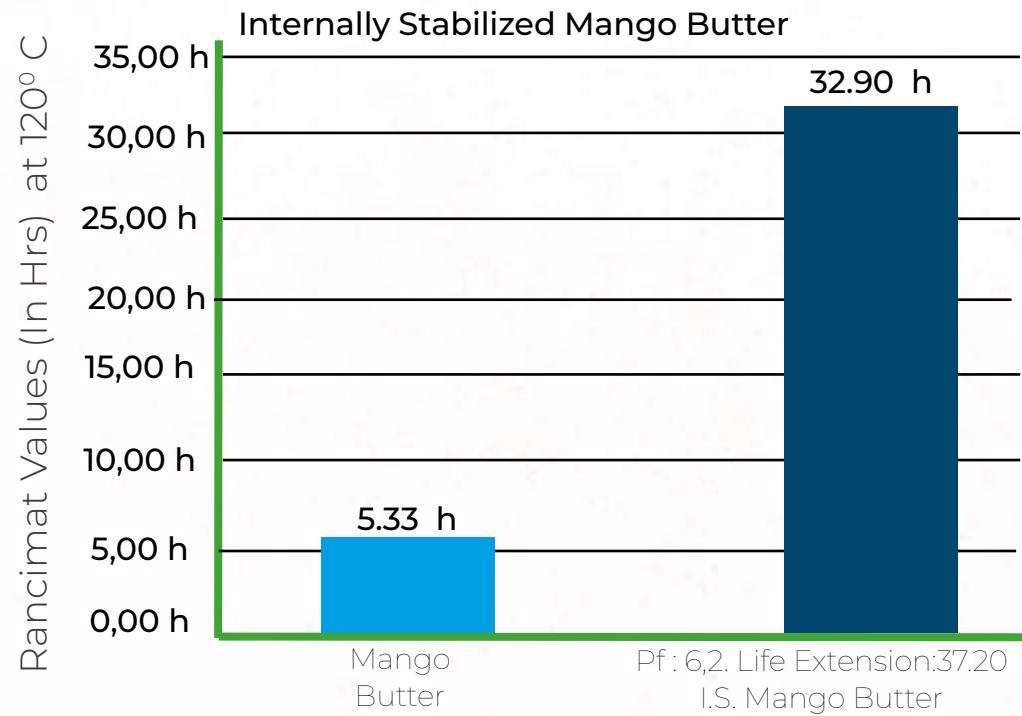
**Effect of Rosemary Extract and other natural antioxidants on Evening Primrose Oil**

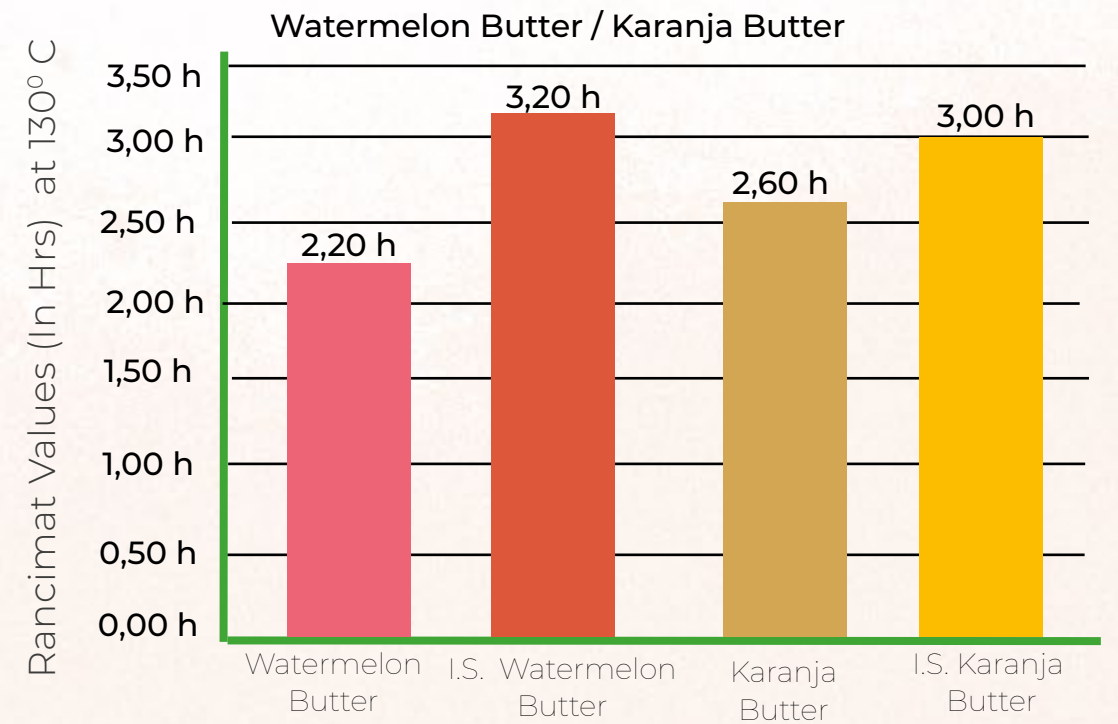
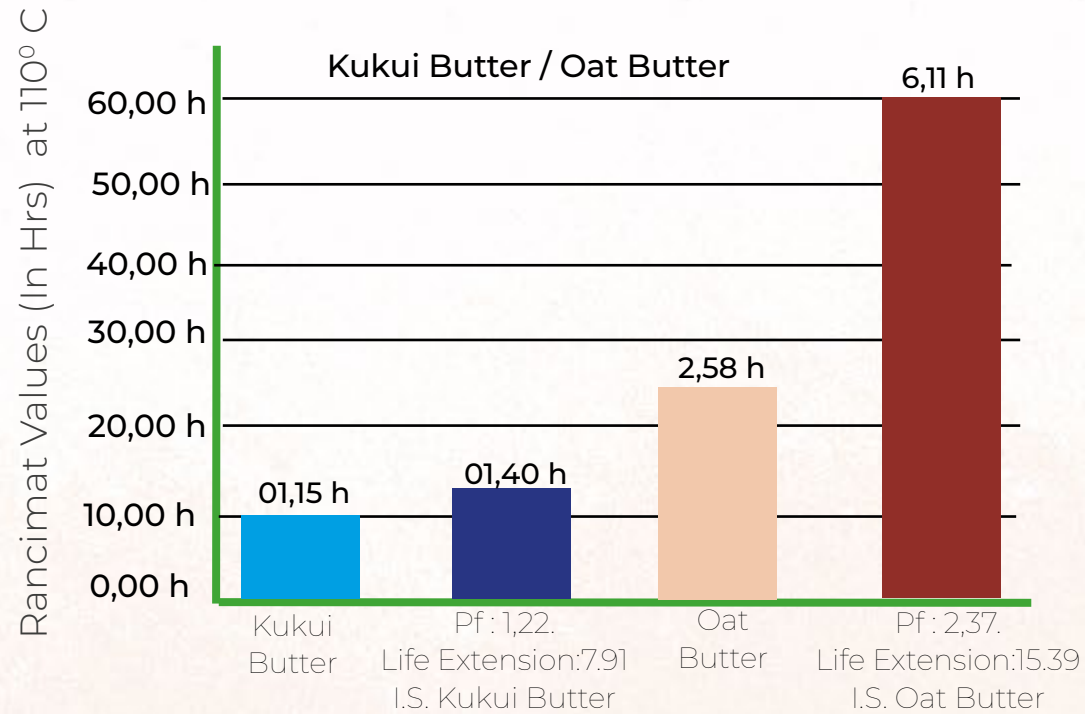
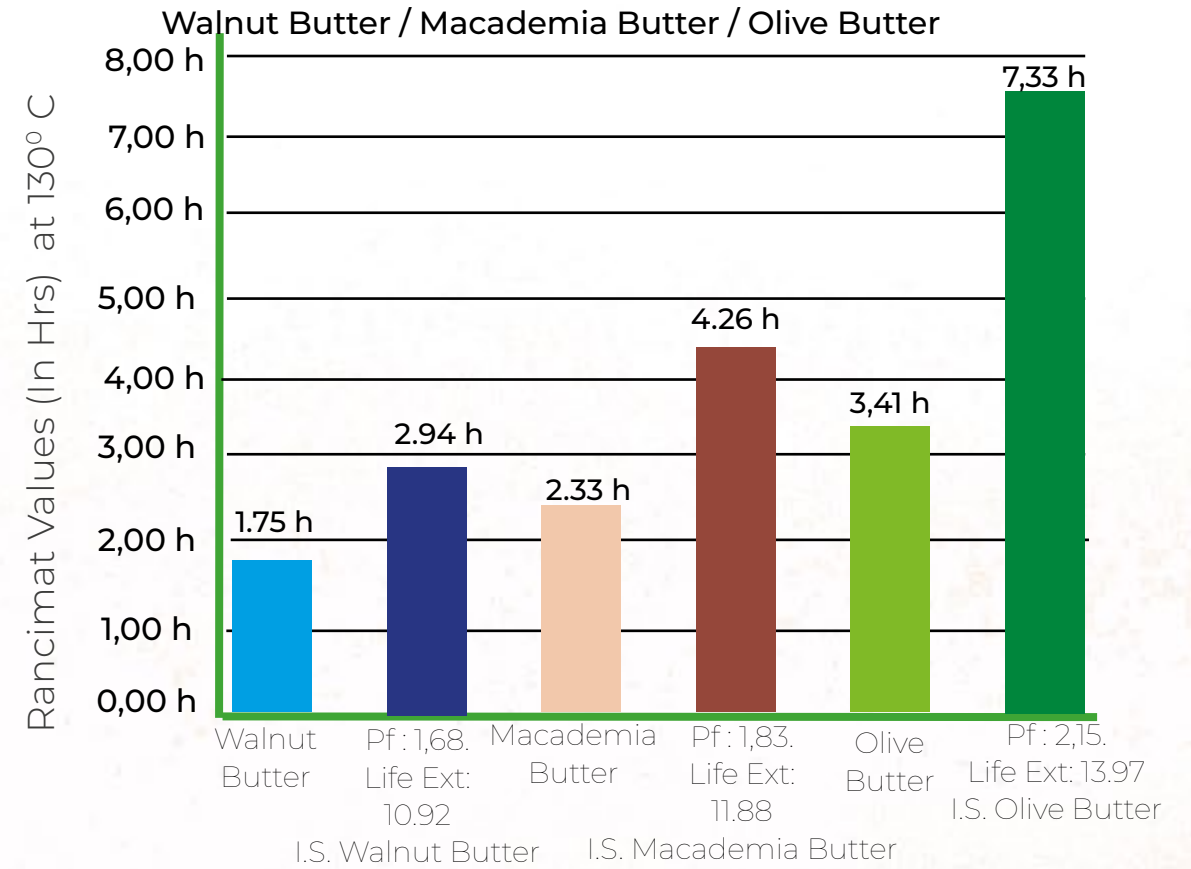
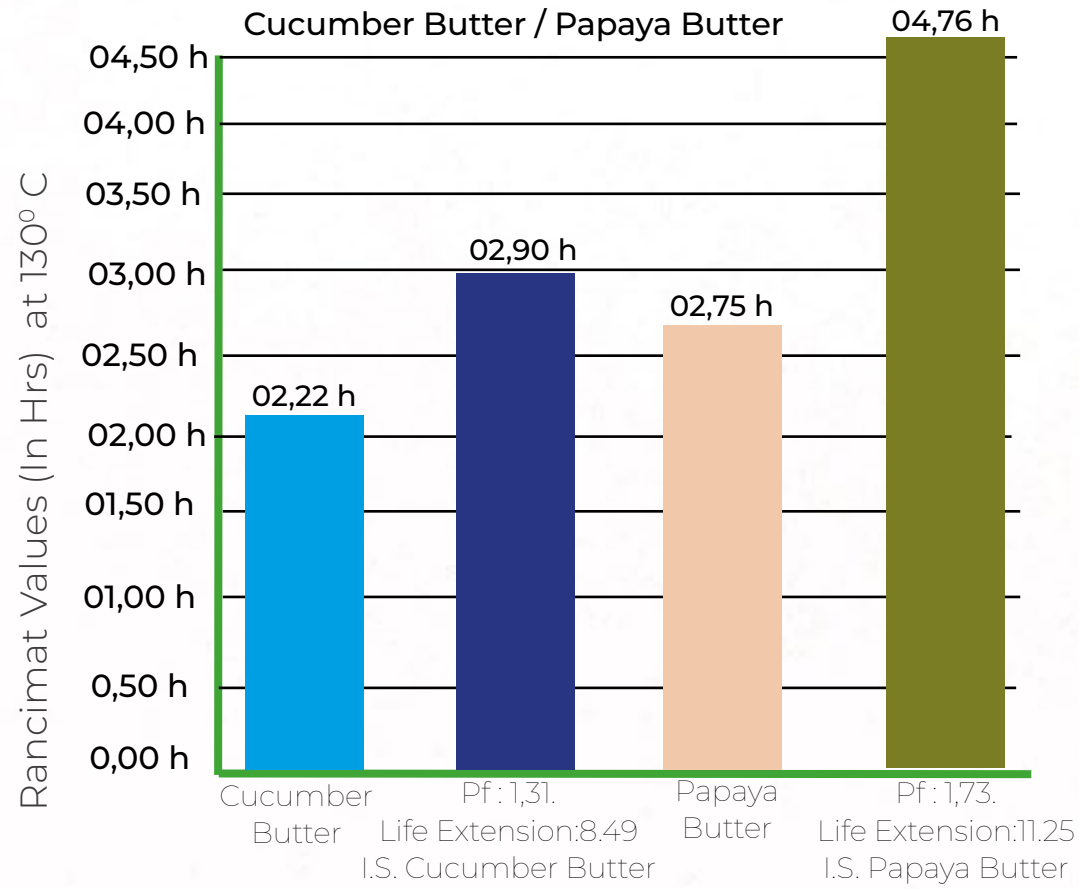


**Internally Stabilized Exotic Vs. Exotics with 1000 ppm Tocopherols**



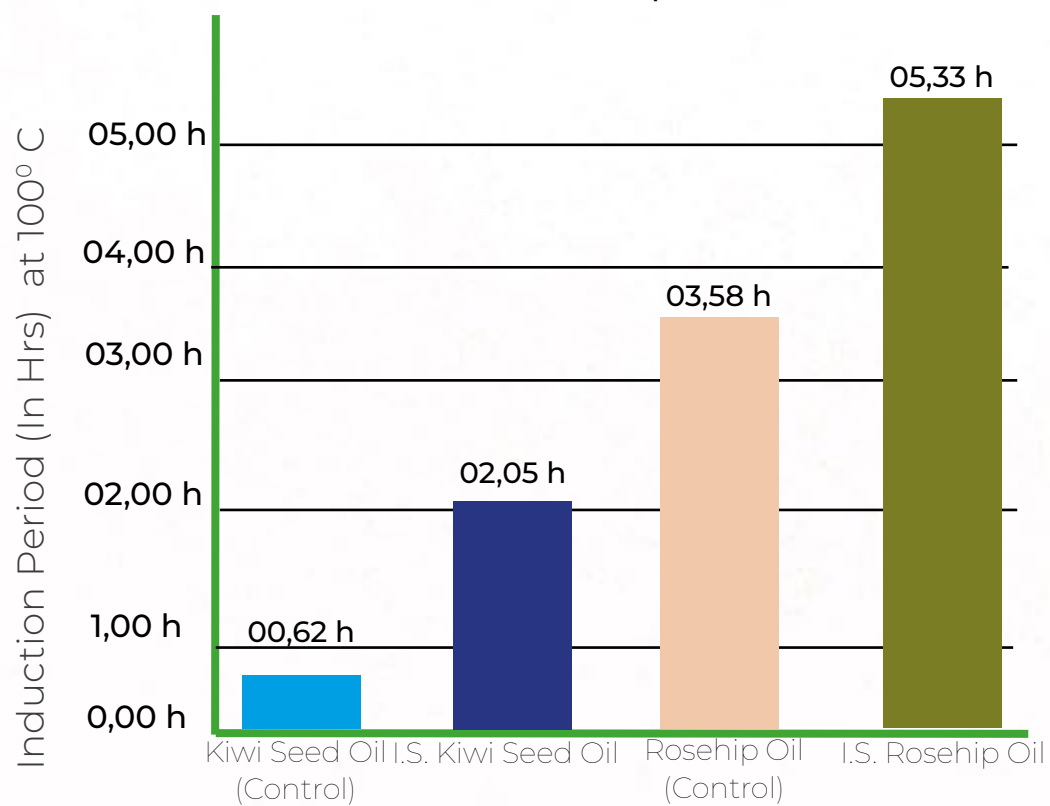
# Internally Stabilized Butters



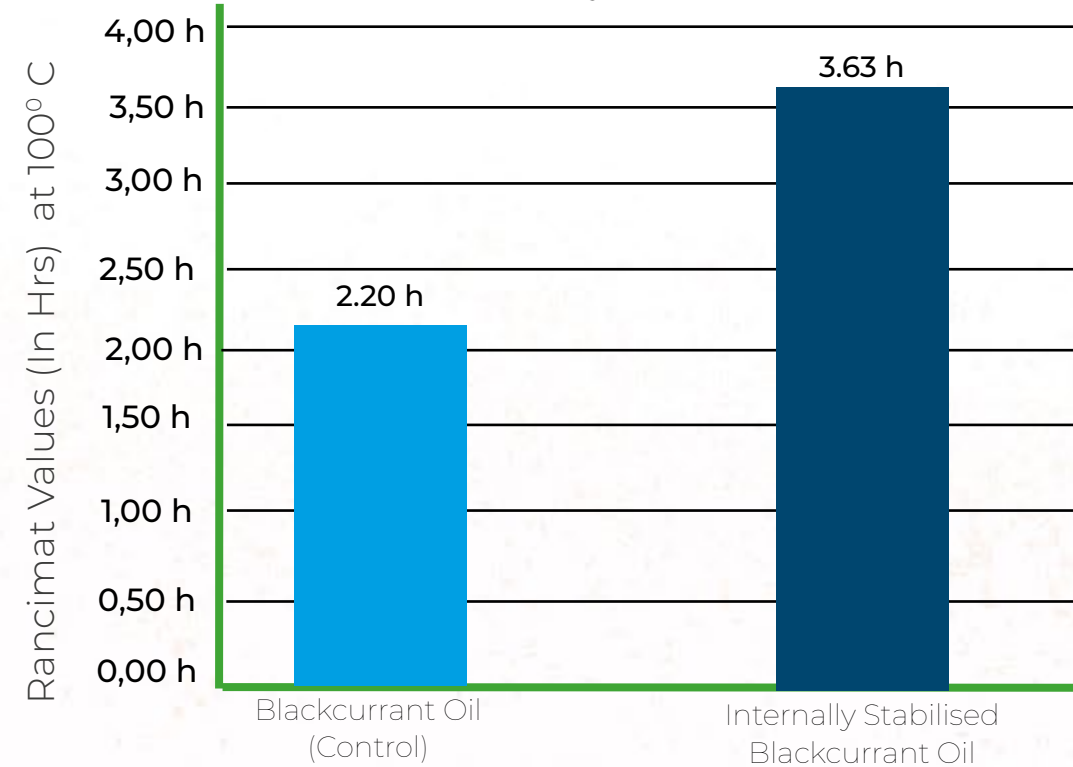




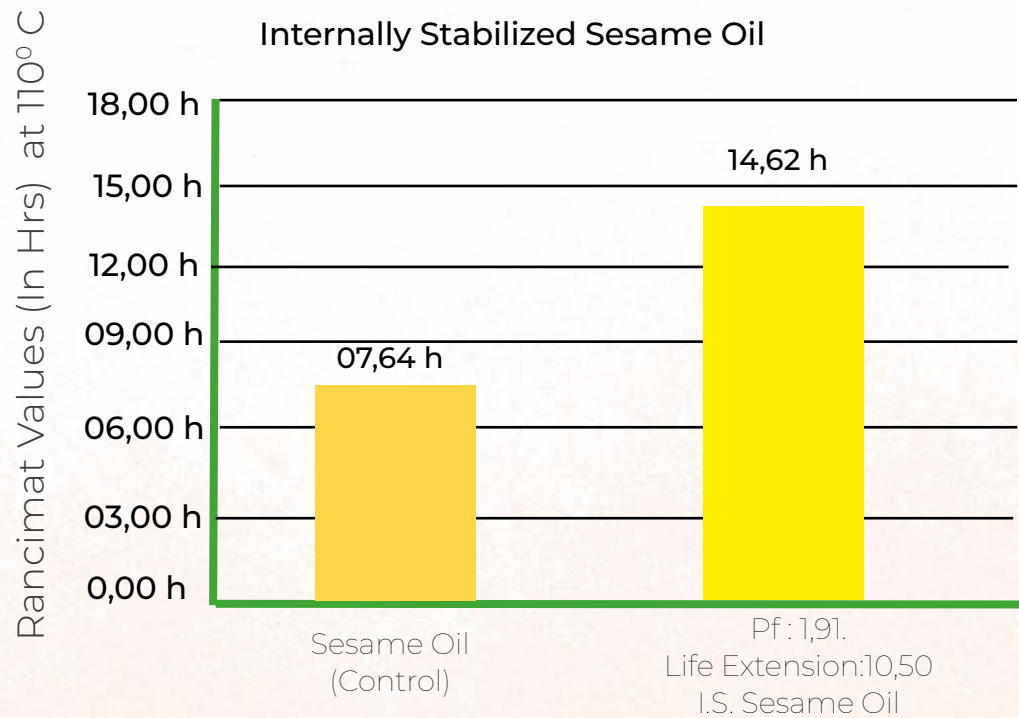
Kiwi Seed Oil / Rosehip Oil



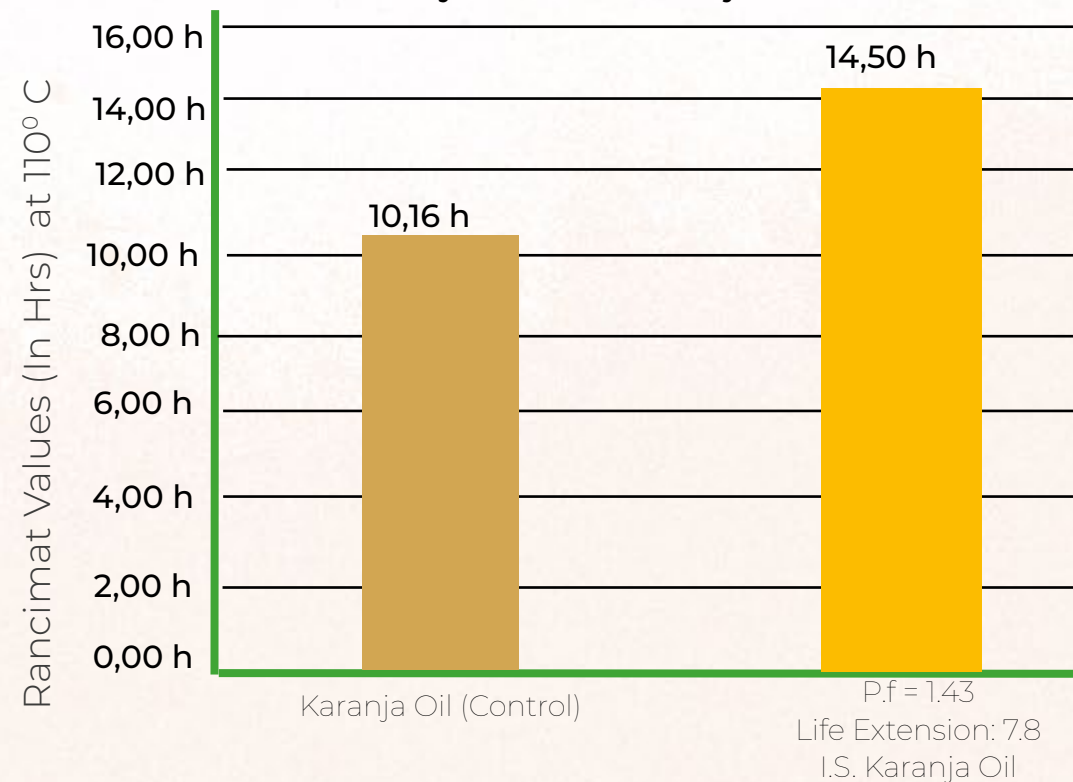
Extended Oxidative Stability of I.S. Blackcurrant Oil



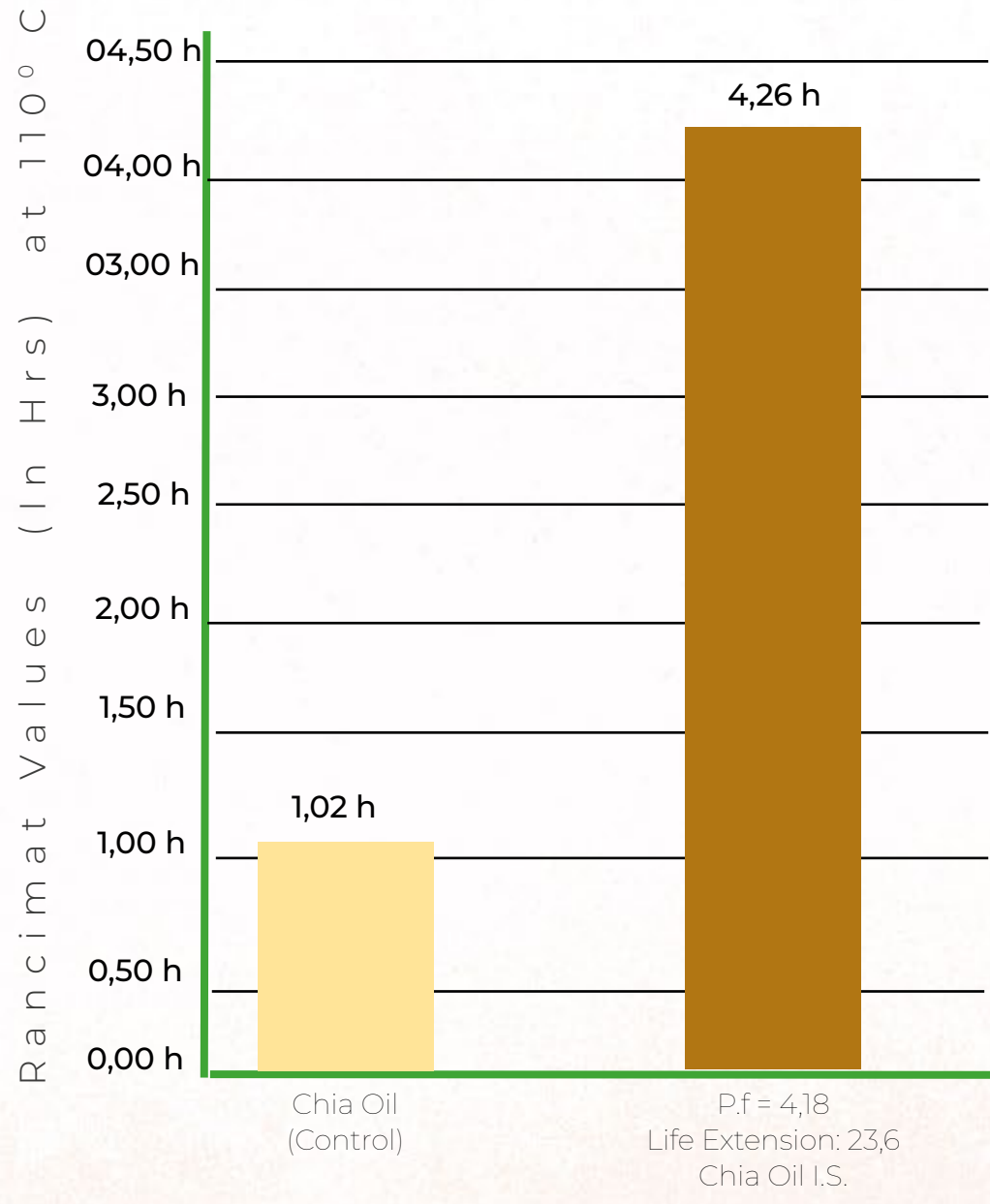
Internally Stabilized Sesame Oil



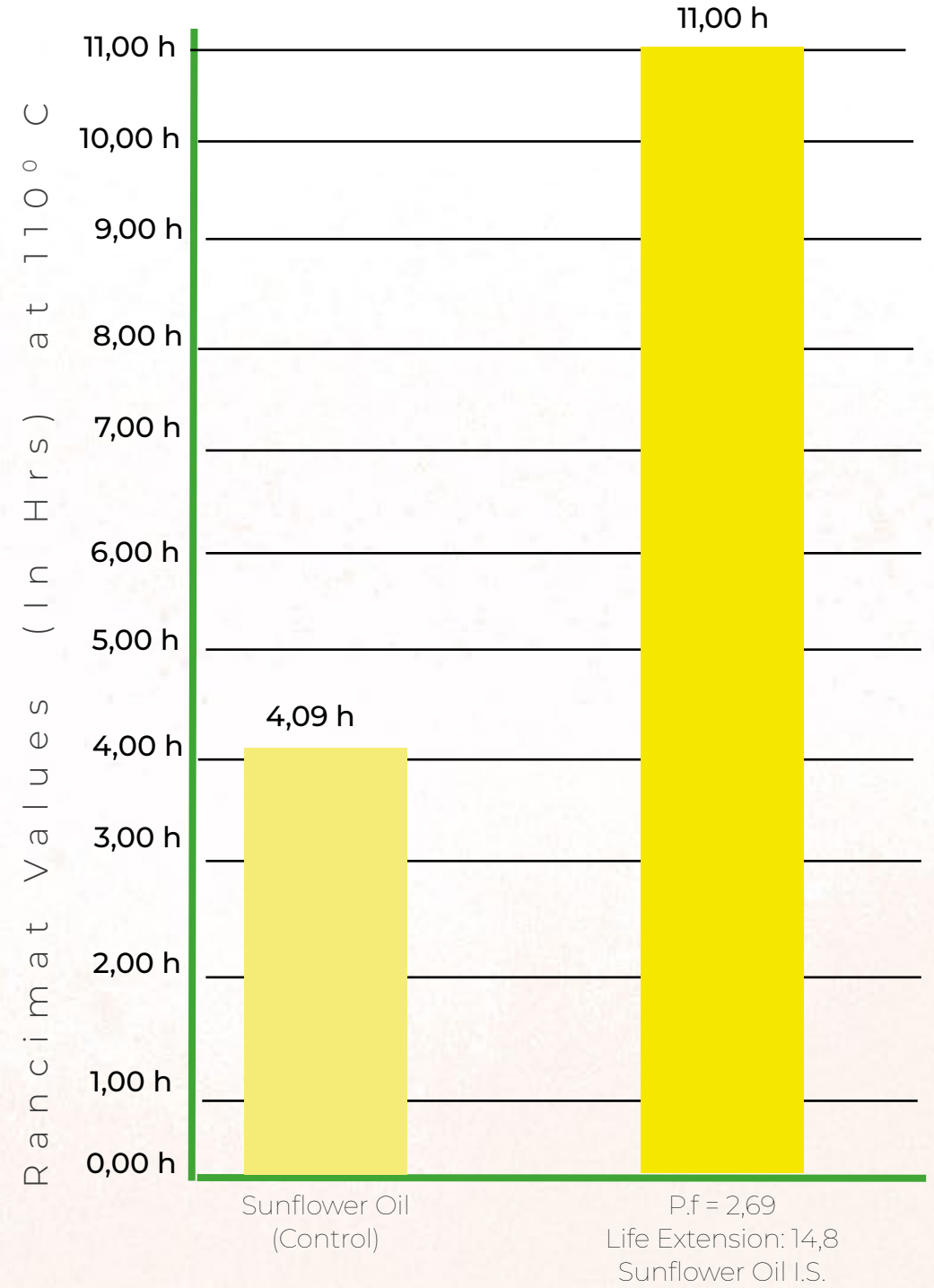
Internally Stabilised Karanja Oil



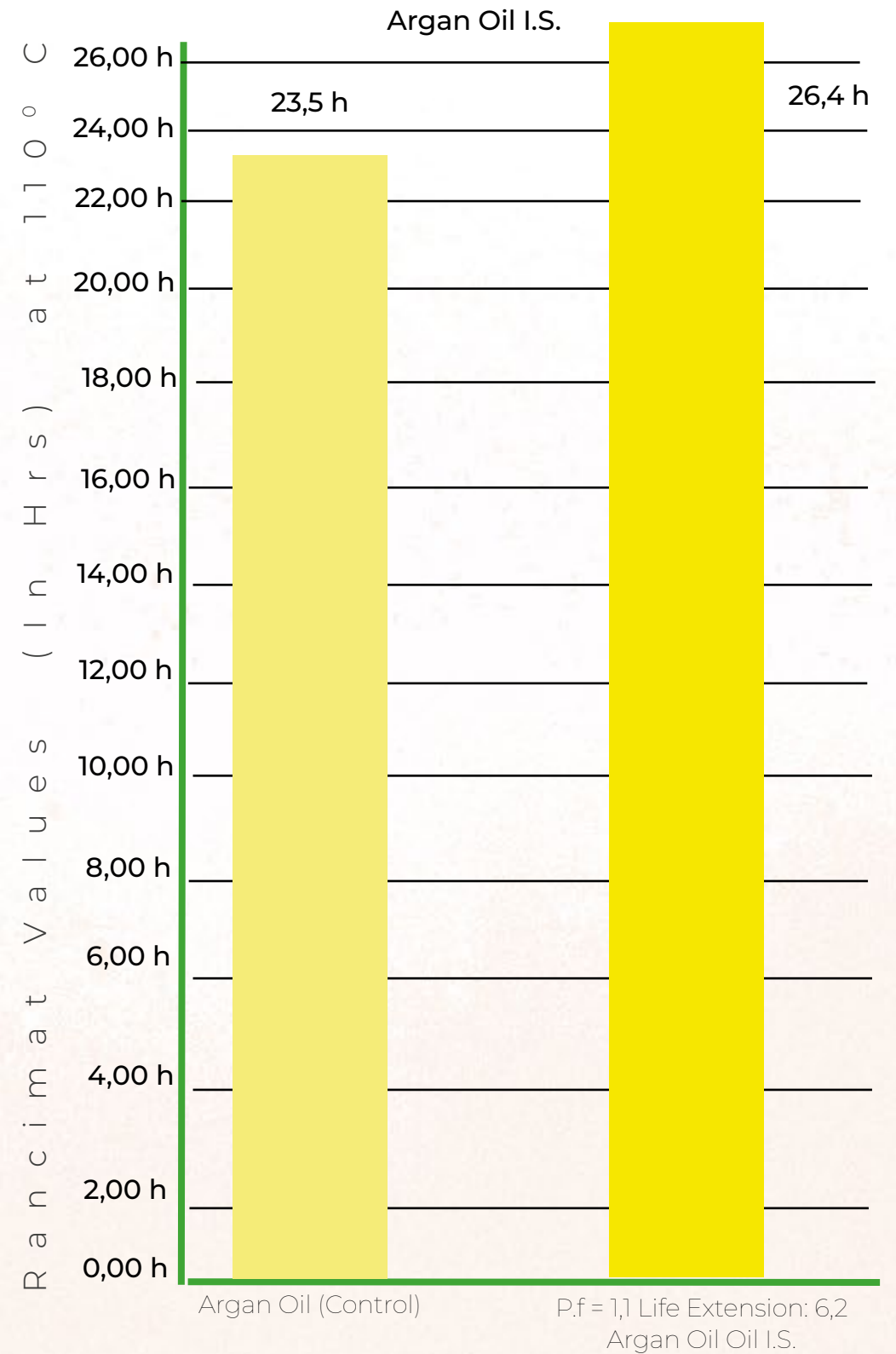
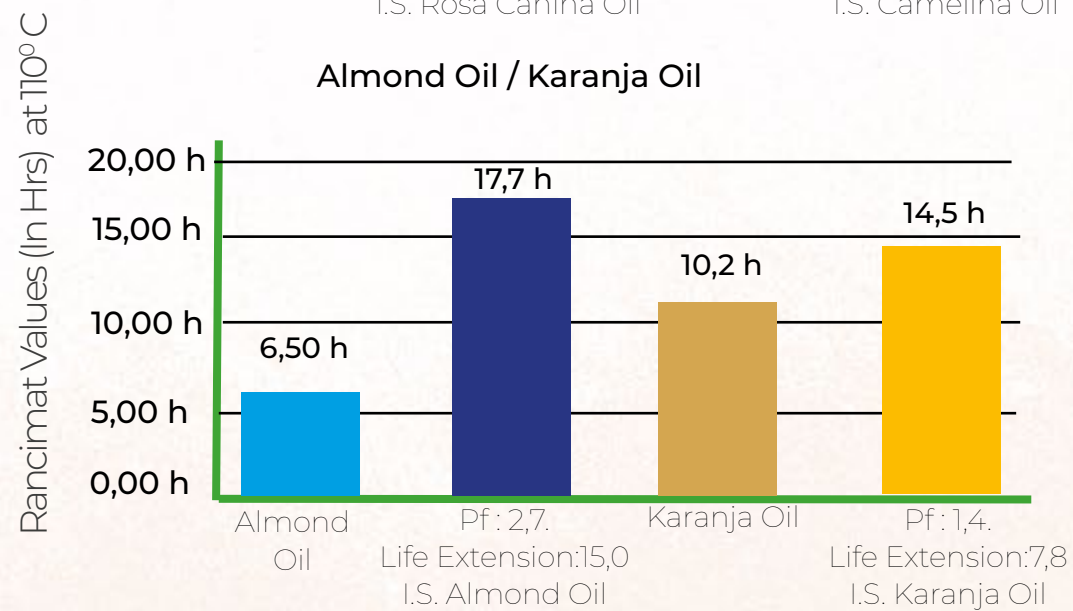
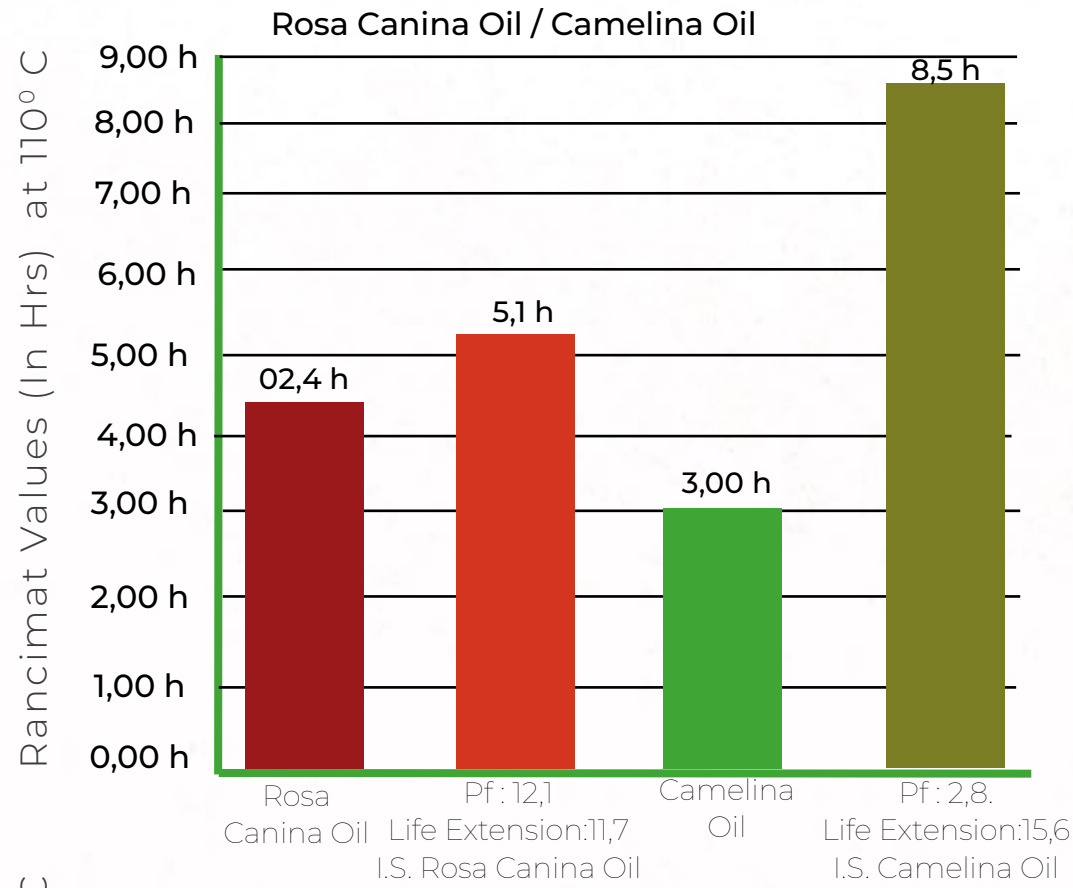
Chia Oil I.S



Sunflower Oil I.S.

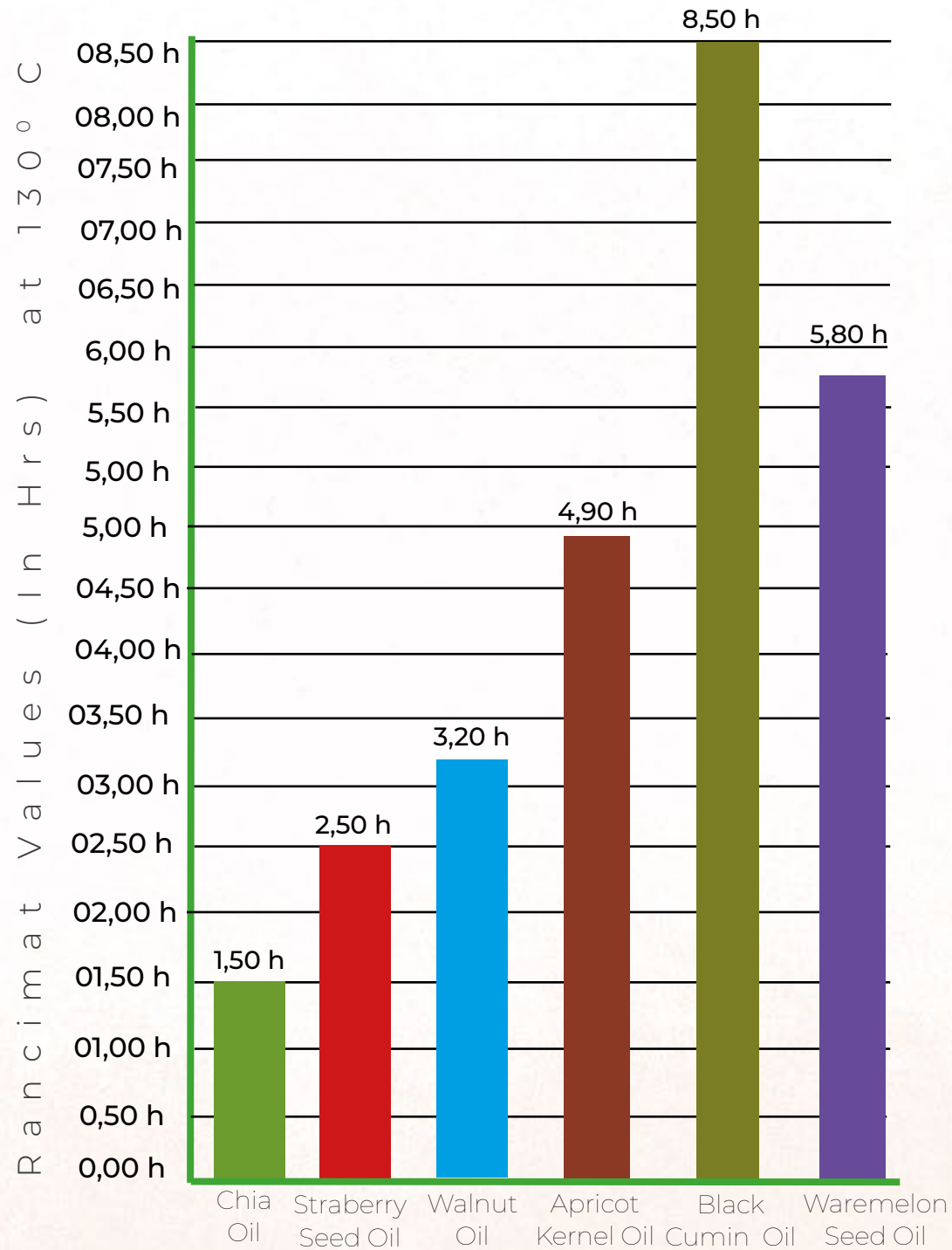


# I. S. - Cosmetic Oils

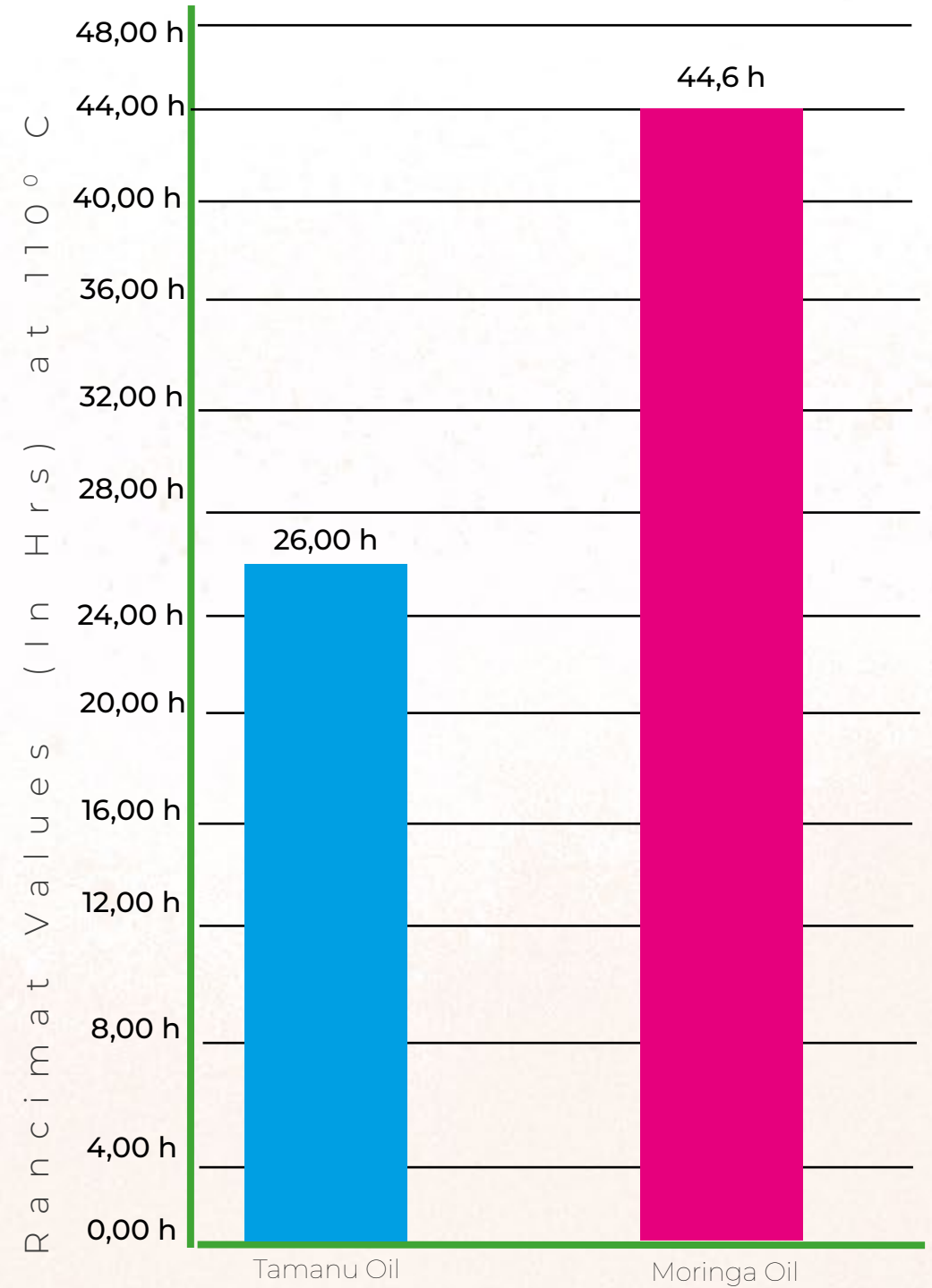




# Stability of Cosmetic Oils



## Tamaru Oil / Mornigs Oil





## Cosmetic Formulations

Following Formulations can be made with ICSC'S Internally Stabilized

Oils and Butters:

- Antimicrobial
- Anti- inflammatory
- Anti- aging
- Anti-wrinkle
- Antifungal
- High SPF
- Antioxidative

## Conclusion

In conclusion, using Internally Stabilized exotic butters and oils, has a number of additional benefits, not just for food formulations, but also for cosmetic products, such as:

- Prolonged shelf-life of the cosmetic products they are used in
- Strong antimicrobial properties, which can reduce the amount of chemical preservatives in the final formulation of the skincare product
- Strong anti-inflammatory and anti-aging properties
- No need to add antioxidants in the formulations of the cosmetic product
- Adds more “natural” label to your product



## Q&A

Q: Can any oil and butter be stabilized?

A: Yes, any lipid material can be Internally Stabilized, extending lifecycle manifold

Q: Can Internally Stabilized products be used in all formulations?

A: Yes

Q: Does it affect the INCI name, etc.?

A: No, as the technology is applied as a processing aid and no additives oils are used after production of the oils / butters

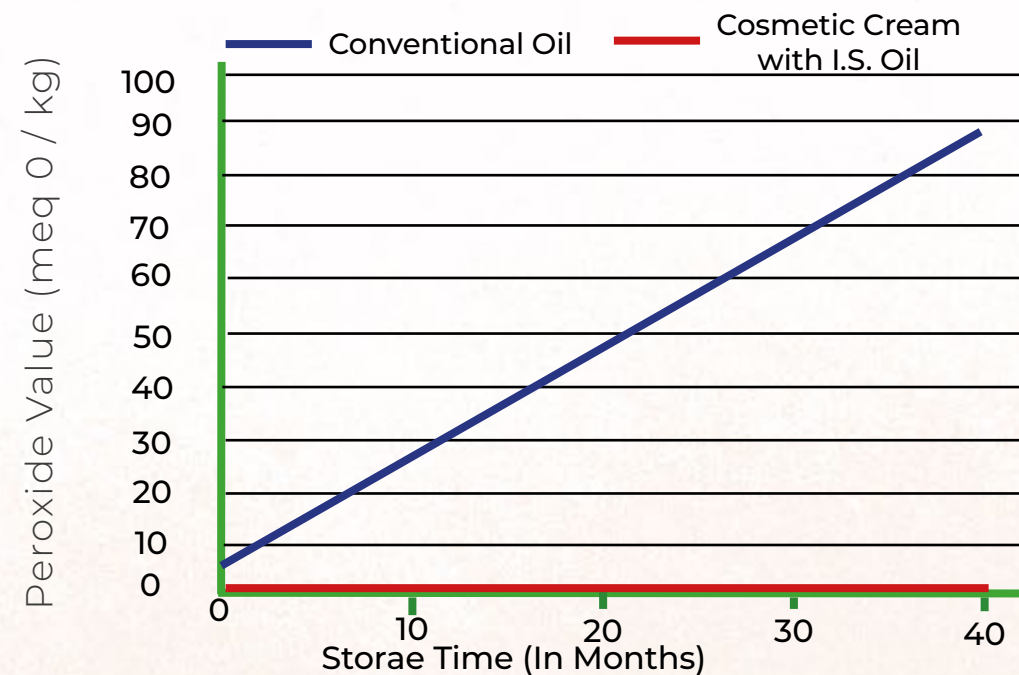
Q: Do you still need tocopherols or can it be totally avoided?

A: Internally Stabilized lipids when used in formulations will not require addition of antioxidants such as tocopherols. Thus, eliminating extra steps and providing cost benefits

Q: How expensive are the Internally Stabilized Oils/Butters?

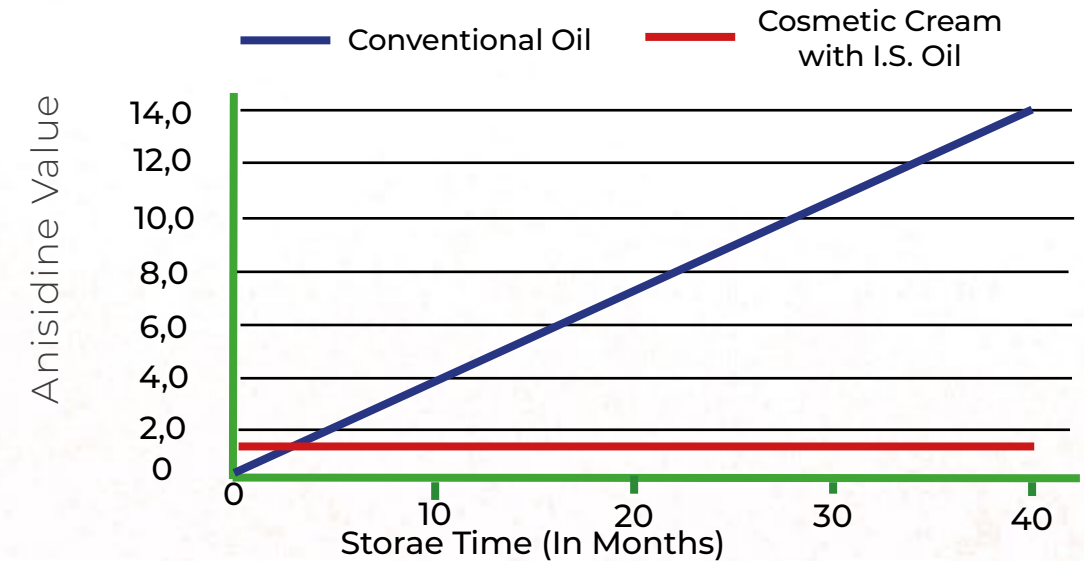
A: These are 40% more expensive than conventional products

### Stability of Cosmetic Cream Employing I.S. Oil - Peroxide Value



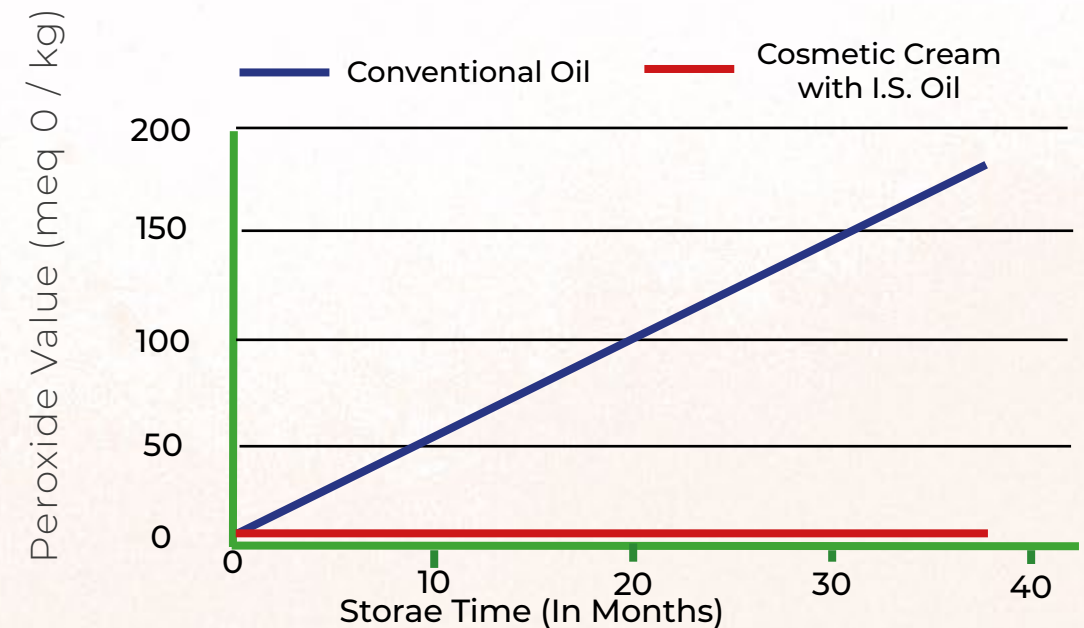
The cream remains stable for 40 months, using Internally Stabilized (I. S.) oils.

### Stability of Cosmetic Cream Employing I.S. Oil - Anisidine Value



The cream remains stable for 40 months, using Internally Stabilized (I. S.) oils

### Stability of Cosmetic Cream Employing I.S. Oil - Totox Value



The cream remains stable for 40 months, using Internally Stabilized (I. S.) oils



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# Contact Information

For more information please contact us  
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We are only one email away!



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