

## STRUCTURED LIPID PRODUCTION THROUGH ENZYMATIC INTERESTERIFICATION BETWEEN PRACAXI AND BABASSU OILS

**Maria Isabel de C. S. Gonzaga\*, Renato Grimaldi.**

### Abstract

The use of Brazilian biodiversity's oils resources on cosmetic products is extremely broad, and many times limited by the incompatibility between sources. The objective of this work was to enable the usage of mixtures containing Babassu and Pracaxi oils through enzymatic interesterification reaction.

### Key words:

*Pracaxi, Babassu, Enzymatic Interesterification.*

### Introduction

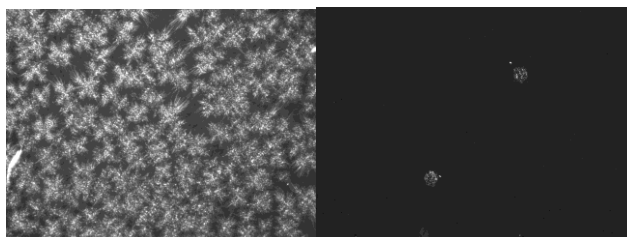
Pracaxi oil has an uncommon characteristic, it has a high concentration of long chain fatty acids, different from babassu oil, that contains mostly short chain fatty acids.

The versatility of fats and oils are significantly improved by the existence of processes to modify the solid-liquid balance of triacylglycerols in certain temperature ranges.

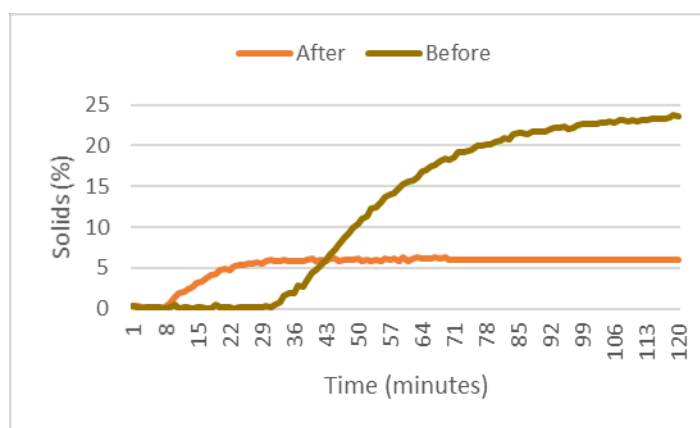
Process as the enzymatic interesterification, that changes the position of fatty acids at the triacylglycerols, on the positions 1,3 can modify this balance. In this work, four blends were made containing babassu, pracaxi and palm kernel oil hard fat. They were analysed individually and blended in different combinations. The blends were made containing 50% babassu oil and 50% pracaxi oil, with 5% and 10% hard fat; and containing 75% babassu oil and 25% pracaxi oil, with 5% and 10% hard fat

### Results and Discussion

Due to the variability of the chain lengths of the fatty acids of pracaxi and babassu oil, some of the blends could present incompatibility. The results of the mixture 75% babassu- 25% pracaxi- 5% hard fat, before and after the reaction are shown bellow. The reduction on the solid content after the reaction proves the increased degree of compatibility between the fractions, once the product is more homogeneous.



**Image 1.** Blend 75% Babassu-25% Pracaxi-5% hard fat, before and after the reaction



**Image 2.** Crystallization isotherm (15°C).

**Chart 1.** Isotherm values (15°C) in the mixture.

Blends	Maximum solids (%)	Induction time (minutes)
Before the reaction	23.7	32
After the reaction	6.0	9

### Conclusions

- Mixtures between the oils containing fatty acids with different chain lengths can present compatibility issues.
- The enzymatic interesterification is an important tool to produce new oil blends sources without the incompatibility issues.

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AOCS. American Oil Chemists' Society. Official Methods and Recommended Practices of the American Oil Chemists' Society. 5ed., 2009.

COSTA, M.N.F.S; MUNIZ, M.A.P.; NEGRÃO, C.A.B.; COSTA, C.M.F.; LAMARÃO, M.L.N.; MORAIS, L.; JÚNIOR, J.O.C.S.; COSTA, R.M.R. Characterization of Pentaclethra macroloba oil. *Journal of Thermal Analysis and Calorimetry*. v.115, n.3, p. 2269-2275, 2014.