

**QUALITY AND IDENTITY PARAMETERS OF MACAUBA (*Acrocomia aculeata*) KERNEL OIL****ÂNGELA ALVES NUNES^{1,3}; DANIELI FERNANDA BUCINI^{1,3}; SIMONE PALMA FAVARO⁴; RUY DE ARAUJO CALDAS²; CRISTIANO MARCELO ESPINOLA CARVALHO³**

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Introduction: The richness of food sources in both Pantanal (wet lands) and Savannah-like area of Central Brazil (the Cerrados) in the State of Mato Grosso do Sul provide alternative energy sources. One species with great potential for that is macauba palm (*Acrocomia aculeata*) is a palm tree native to the tropical Americas it is an endemic species in the Cerrados and Pantanal biomes. The fruits provide pulp, rich in long chain fatty acid (LCFA) and kernel oil which has high concentration of medium chain fatty acid (MCFA). Physical and chemical properties of oils are fundamental to the determination of their quality and identity, these characteristics are important with respect to the use oils in human diets. One species with great potential as source of saturated and unsaturated fatty acids is macauba palm, which has been used in different communities, mainly by native indians and for people living in rural areas. The fatty acid composition and its physicochemical properties of macauba pulp oil is characterized indicates an oleic (59.7%) and palmitic (22.0%) profile, being nicknamed "olive oil of the Brazilian Cerrado" [1]. However the macauba kernel oil presents different profile, indicating high levels of medium chain fatty acids (MCFA). **Aim:** The present study aimed to characterize cold-pressed macauba kernel oil according to their quality and identity parameters. **Material and methods:** The lipids content was determined in a Soxhlet apparatus, extracted by hexane solvent. The acidity, peroxide, refractive, iodine and saponification indexes were evaluated to characterize the macauba kernel oil [2]. **Results and discussion:** Macauba kernel was obtained from fruits harvested in the Cerrado of Mato Grosso do Sul State and its lipid content determined was in average $646.5 \pm 5.5 \text{ g kg}^{-1}$ dry matter. No peroxides were detected in the macauba kernel oil which indicates that was no addition of oxygen to the double bonds of the fatty acids, due to the low content of insaturation, indicating the oil samples were well preserved. Both indexes peroxide and acidity (Table 1) is in accordance with the international standards: maximum acidity $4.0 \text{ mg KOH g}^{-1}$ and peroxide index $15 \text{ meq O}_2 \text{ kg}^{-1}$ [3]. The saponification and refraction indexes are related with the specific characteristics of oil and fat with respect to fatty acid chain length, mean molecular weight and degree of unsaturation. In addition the iodine value indicates the richness of unsaturated fatty acids that are related to the oxidative stability of oils. **Conclusions:** In conclusion, our results indicate the macauba kernel oil samples were well preserved, in accordance is the International *Codex Alimentarius*.

Table 1. Quality and identity parameters of the macauba kernel oil.

Index	Values ¹
Acidity index (mg KOH g^{-1})	0.57 ± 0.04
Peroxide index ($\text{meq O}_2 \text{ kg}^{-1}$)	0.00 ± 0.00
Refraction index at 20°C	1.456 ± 0.00
Saponification index (mg KOH g^{-1})	255.42 ± 8.65
Iodine value ($\text{g I}_2 100^{-1} \text{ g}$)	26.59 ± 0.83

References:

[1] Nunes A. A, Favaro S. P, Galvani F, Miranda C. H. B. Eur J Lipid Sci Tech. 2015;117 (12):2036-43.

[2] AOCS, Official Methods and Recommended Practices of the American Oil Chemists' Society, AOCS Press, Champaign, IL 2004.

[3] Codex Alimentarius. Standards for Fats and Oils from Vegetable Sources. Codex Alimentarius-Stan 210. 1999. Available: <http://www.fao.org/docrep/004/y2774e/y2774e04.htm#TopOfPage>.

Key-words: *Acrocomia aculeata*, medium chain fatty acid, type 2 diabetes.

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