



# MACAÚBA

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### HYPOGLYCEMIC EFFECT OF DIETARY *Acrocomia aculeata* KERNEL OIL ON TYPE 2 DIABETIC RATS

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Macauba (*Acrocomia ssp*), is a palm tree native to tropical America found mostly in the wetlands (Pantanal) and Savannah like area (Cerrados) of Brazil. Its fruit yields pulp and kernel oils, whose fatty acid compositions are very distinguishable. The pulp oil is rich in oleic acid, the macauba provides also kernel oil rich in medium chain fatty acids (MCFAs) accounts for approximately 50% of the total composition, and lauric acid is the most abundant. In our research group, we have been looking at alternative sources other than carbohydrates to supply energy as a strategy to mitigate the deleterious effects of type 2 diabetes. The role MCFAs play is likely connected to their specific mechanisms of absorption, transport, and mitochondrial metabolism, which diverges from long chain fatty acids. In this study evaluated the effects of dietaries formulated with kernel oil of *Acrocomia aculeata* (AKO), rich in medium chain fatty acids (MCFA), as partial substitute of carbohydrate calories. The rats induced to type 2 diabetes by high fat diet and low dose of streptozotocin 35 mg/kg body. The oil was obtained by cold pressing and contained 45.40% of lauric acid. Two doses of AKO were evaluated: 40 and 160 g.kg<sup>-1</sup> diet. Blood glucose level, lipid profile, insulin secretion, and insulin sensitivity were assayed after 28 days. Dietary with AKO exerted hypoglycemic action, stimulated insulin secretion, improved pancreatic  $\beta$  cell function (HOMA- $\beta$ ), and decreased insulin resistance (HOMA-IR) it also had a positive effect on pancreatic islet morphology and on the number of  $\beta$ -cells. In addition, AKO fed rats showed reducing triglycerides, lower density lipoprotein-cholesterol and increasing high density lipoprotein-cholesterol levels, and improved hepatic function markers. Those findings suggest AKO was effective to ameliorate the health of diabetic rats.

**Palavras-chave:** macauba, lauric acid, insulin resistance, hyperglycemia

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