

# A COMPARATIVE EXPERIMENTAL STUDY OF THE EFFECTS OF YAGUA PALM (*Attalea butyracea*) OIL VS. SOY OIL ON LIPID PROFILE IN RATS

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## INTRODUCTION

The literature on palm oil as a cholesterol-raising oil is conflicting, requiring further studies.

Yagua palm (YP, *Attalea butyracea*) is a species of Venezuela coast mountain range of with potential for oil production and present superior qualities than African Palm like a total of 25,8% of saturated fatty acids and 74,2% of unsaturated.

## OBJETIVE

Evaluate the effect of diets intake (AIN-93) containing Soy oil, Yagua Palm oil and Soy/Yagua palm oil mixture on lipids profiles in rats.

## MATERIALS AND METHODS

Twenty four male, Sprague-Dawley rats with a mean body weight of 200 g were used for this study. The rats were housed individually in cages with diets prepared and divided into four groups fed their respective diets (AIN-93): A (control- 7% soy oil ); B (3.5% soy oil- 3.5% YP oil); C (1.75% soy oil- 5.25 % YP oil) and D (7% YP oil) for 31 days. Body weights were measured each two days and consumption everyday. At the end of the experiment, the rats were food-deprived for 14 h before intraperitoneal injection of an overdose of sodium pentobarbital and euthanized by exsanguination. Blood samples were withdrawn from the heart, then transferred to the labeled centrifuge tube and allowed to clot at room temperature for one hour and then centrifuged for ten minutes at a speed of 3000r. p.m. Serum was separated and used fresh. Serum triglyceride (TG), total cholesterol (TC), HDL-c concentrations were measured through enzymatic methods using the automated biochemistry analyzer Dimension Chemistry System, Dade Behring®. The value of serum low density lipoprotein cholesterol (LDL-C) was calculated based on Friedwald's equation  $LDL-c = TC - TG/5 - HDL-c$ .

The VLDL-c was calculated based on equation  $VLDL = TG/5$

## RESULTS

The results were that YP oil induced significant decreases ( $p < 0.05$ ) of TC (total cholesterol) in groups B, C and D ( $32 \pm 5$  mg/dL;  $31 \pm 4$  mg/dL and  $30 \pm 5$  mg/dL), respectively, when compared with the control group ( $39 \pm 4$  mg/dL) for 31 days experimentation (Figure 1). Additionally, a significant decreases of LDL-C ( $10 \pm 3$  mg/dL) in the D group (Figure 2) was observed when compared with group A ( $19 \pm 4$  mg/dL). By comparing the group's means no significant differences were found in VLDL, HDL and Triglycerides plasma concentrations

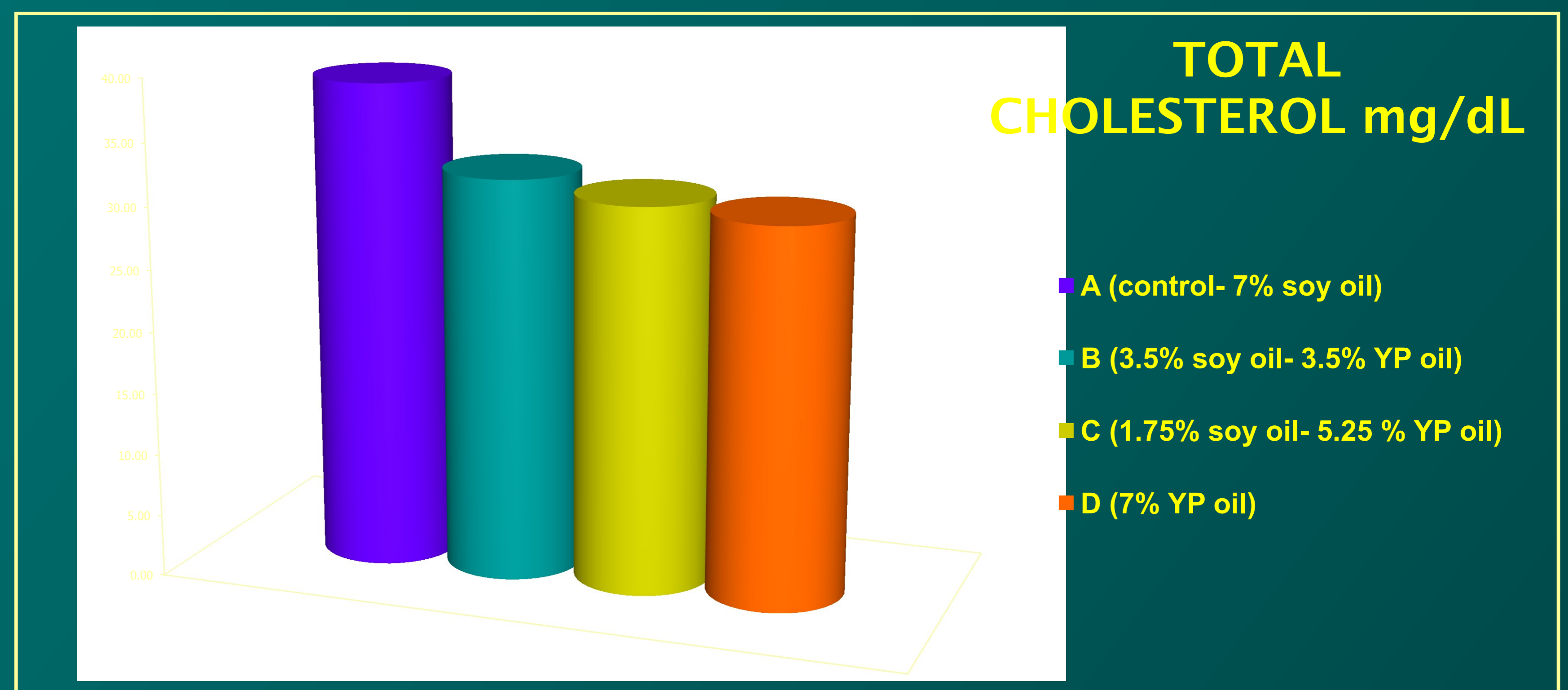


Fig.1. Total Cholesterol (mg/dL) of rats fed with diets containing Soy oil, Yagua Palm oil and Soy/Yagua palm oil mixture for 31 days

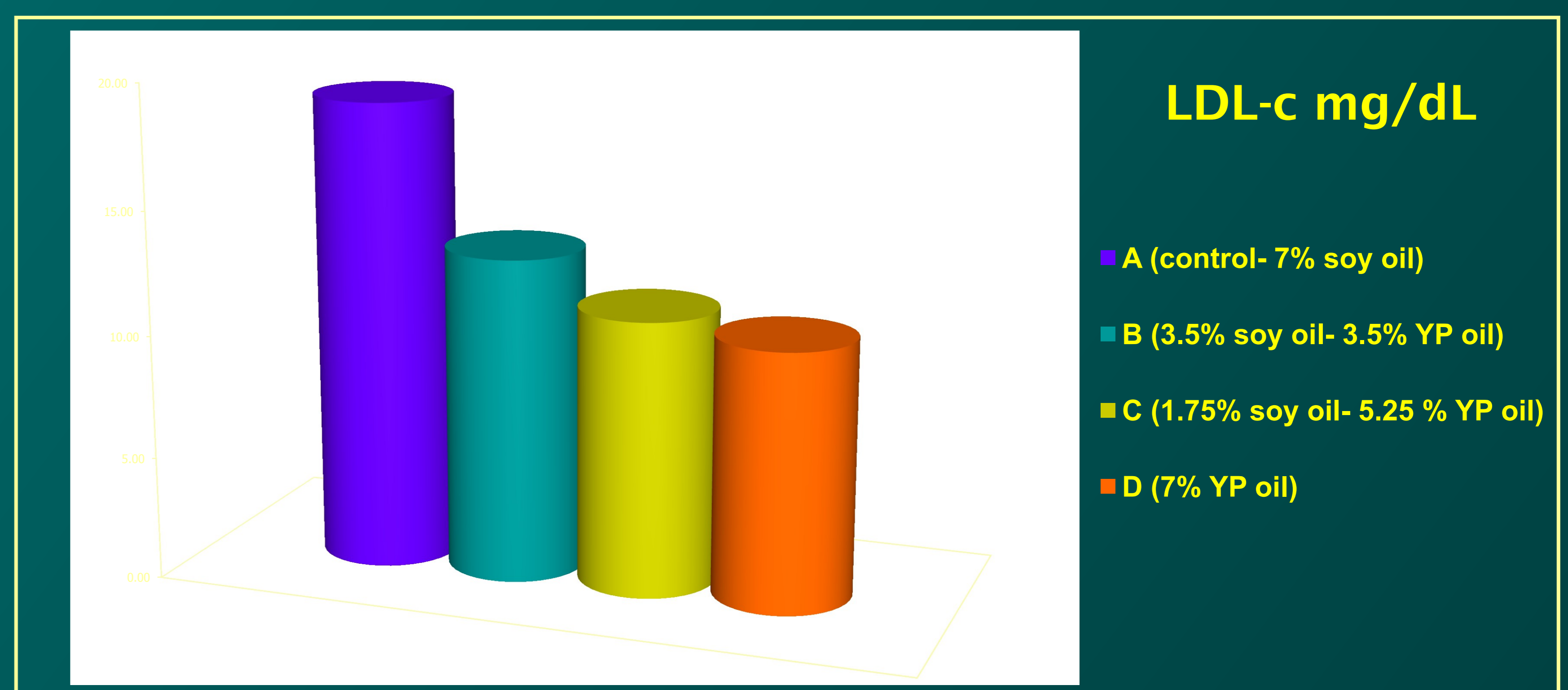


Fig.2. LDL-c (mg/dL) of rats fed with diets containing Soy oil, Yagua Palm oil and Soy/Yagua palm oil mixture for 31 days

## CONCLUSION

Considering that soy oil improve cardiovascular health benefit by lowering the markers for CVD risk, these results allow to conclude that the supplementation with YP oil diminishes the TC and LDL, improving the ratio TC/HDL-C. The presence of a monounsaturated fatty acid (oleic acid) in YP oil, show its anti-atherosclerotic properties by modifying plasma lipids and could be a good choice for functional foods in order to replace other fats.

## REFERENCES

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