Activity of the extract of yerba mate with higher content of phenolic compounds in reducing triglycerides

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Introduction: Mate (Ilex paraguariensis A. St.-Hil., Aquifoliaceae) is a native species of the subtropical regions of South America. It has methylxanthines, saponins and other compounds. Recently, was observed the importance of phenolic compounds such as caffeoyl derivatives (CQAs) (Bravo, L., Food Res. International, v.40, p.393, 2007).

Experimental Part: The extraction of metabolites from leaves was made with water (INF), methanol/water (70:30) (CRU) and fractionated with n-butanol by liquid/liquid partition (BUT). The phytochemical analysis was performed by HPLC. Chromatographic peaks of caffeoyl derivatives (3-CQA, 5-CQA, 4-CQA, 3,4-DCQ and 3,5-DCQ) were identified by comparison of retention time and UV spectrum with chlorogenic acid standard. Wistar albino rats (8-weeks-old, 250-350 g) received hypercholesterolemic standard diet, (PCG, positive control group, n =6) (CRU, treatment groups with crude extract, n=7), (BUT, n-butanolic treatment groups, n=7) 800 mg/day, and (SIG, simvastatin group, n=7). Control group received standard laboratory diet (NCG, n=6). The animals received for 30 days only the diet, and after, they received the specifics treatments for more 30 days. At the end of the experimental period (60 days), the blood was collected from the tail lateral vein and the concentrations of triglycerides in plasma were determined. Statistical evaluation was done using one-way ANOVA and Duncan's tests, (p<0.05).

Results/Discussion: The crude extract showed a greater ability to extract phenolic compounds (180.51 mg/g) compared to infusion (80.28 mg/g), and the fractionation process increased the final concentration of these constituents (250.56 mg/g). The ratio between the levels of different isomers monocaffeoylquinic and dicaffeoylquinic are close to values reported (Bravo, L., Food Res. International v.40, p.393, 2007) and the serum triglycerides (BRU = 0.65±0.24* and BUT 0.58±0.19* mmol/L) were significantly lower in the groups treated (PCG = 0.91±0.21 and NCG = 0.76±0.11 mmol/L).

Conclusion: It’s was possible to verify the existence and activity of phenolic acids corresponding decrease of triglycerides.

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