HIGH FAT DIET- INDUCED HEPATIC STEATOSIS IS REDUCED BY MATE TEA IN MICE

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Introduction: Obesity patients have prevalence of liver alterations, ranging from hepatic steatosis to non-alcoholic fatty liver disease, which has potential to become cirrhosis and hepatocarcinoma. Antioxidant, anti-inflammatory and induction of lipid catabolism are properties described of mate tea.

Objective: To evaluate hepatoprotective and anti-obesity effect of mate in high fat diet-subjected mice.

Methods: C57BL/6 male mice were randomized into 4 groups treated during 13 weeks: control (standard diet), HFD (high fat diet–70%), HFD+Mate (HFD that consumed mate–10g/kg/day) and HFD+FFB (HFD mixed with 0.2% fenofibrate-FFB). Oxidative stress, inflammatory and histological parameters were evaluated in liver tissue. Metabolic data were monitored.

Results: Liver catalase activity was reduced in HFD group when compared to control, and Mate and FFB treated groups presented CAT elevation, relative to control and HFD groups. All groups HFD presented increased glutathione reduced/glutathione disulfide ratio. As lipid oxidative damage marker, TBARS showed an elevation in HFD and HFD+Mate groups when compared to control, but HFD+FFB was not altered. Carbonil levels were increased in all groups HFD, but the elevation was attenuated in mate and FFB. Nitrite levels were also increased in all HFD groups, but HFD+Mate was reduced relative to HFD group. Pro-inflammatory cytokine KC was elevated in HFD group and reduced by Mate and FFB treatments. Similarly, Mate and FFB treatments reduced the IL-1β levels when compared to HFD group. Liver weight was increased in all HFD group, but the weight gain was attenuated in Mate and FFB treated groups. Visceral and subcutaneous adipose tissue was increased in HFD group, and Mate and FFB treatments prevented this weight gain. Area under the curve of glucose tolerance test (GTT) was increased only in HFD group.

Conclusion: Weight control and anti-inflammatory effects of mate were more evident in this study than its antioxidant action, suggesting a modulation of metabolic disorders caused by obesity.

Acknowledgements: E_45/2013 PAPDRJ – CAPES/FAPERJ.

Key-words: hepatic steatosis; mate tea; high fat diet.