MATE TEA (*Ilex paraguariensis*) INTAKE IMPROVES GLYCEMIC PROFILE AND ANTIOXIDANT DEFENSE IN TYPE 2 DIABETES MELLITUS AND PRE-DIABETES INDIVIDUALS

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The generation of oxidative stress and impaired antioxidant defense system induced by prolonged hyperglycemia play an important role in the etiology of diabetic complications. This study evaluated the effect of long-term mate tea (*Ilex paraguariensis*) consumption on the glycemic profile and oxidative stress biomarkers of type 2 diabetes mellitus (T2DM) and pre-diabetes individuals. It was carried out a 60-day intervention pilot study where 11 T2DM and 11 pre-diabetes volunteers ingested 1 L/day of mate tea. Glycemic profile and oxidative stress parameters as ferric reducing antioxidant power (FRAP), erythrocyte reduced glutathione (GSH) and serum lipid hydroperoxide (LOOH) using ferrous oxidation-xylenol orange, were assessed at baseline and after 20, 40, and 60 days of intervention. Mate tea consumption promoted a significant reduction ($p < 0.05$) in fasting plasma glucose in T2DM individuals and in glycated hemoglobin A\textsubscript{1c} in both T2DM and pre-diabetes individuals. It was not found significant variations in FRAP concentrations during the study. However, the intake of mate tea promoted a significant increase ($p < 0.05$) of the endogenous antioxidant GSH and a significant decrease ($p < 0.05$) of lipid peroxidation measured through LOOH in T2DM and pre-diabetes subjects. In addition, GSH and LOOH concentrations were inversely correlated in T2DM and pre-diabetes subjects. No correlations between oxidative stress biomarkers and glycemic profile were found. This present study showed that the ingestion of mate tea improved glycemic profile and attenuated oxidative stress in T2DM and pre-diabetes subjects, which may prevent diabetes complications.