Antioxidant activity of *Ilex paraguariensis*, *Maytenus ilicifolia* and *Foeniculum vulgare* Mill. aqueous extract against t-butyl hydroperoxide-induced oxidative damage to blood cells: a comparative study

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**Introduction:** Oxidative stress seems to be largely involved in some pathological conditions. Thus, the searches for molecules with antioxidant potential, and putatively able to counteract it, are of fundamental importance. Accordingly, the use of plants to treat human disorders is a common practice since ancient times, being that the interest in plants has increased in last decades. Indeed, the high costs associated to the inefficacy of main synthetic drugs to treat some disorders, has contributed to increase the utilization of natural products, primarily plants extracts and/or its metabolites. Thus, in this study we investigate, in a comparative way, the ability of aqueous extract of *I. paraguariensis*, *M. ilicifolia* and *F. vulgare* to counteract the t-butyl hydroperoxide (t-BHP)-induced oxidative changes in human blood cells. **Materials and Methods:** Blood samples were collected from healthy subjects by venipuncture. Thereafter, blood was centrifuged and washed three times with PBS (pH 7.4). Blood cells were co-incubated with extracts (0.02, 0.2 and 2 mg/mL) and/or t-BHP (4 mM) at 37\(^\circ\)C during 1h. Afterward, biochemical analyses (non-protein SH (NPSH) levels; thiobarbituric acid reactive species (TBARS) levels; and Osmotic Fragility) were performed. **Results and Discussion:** *I. paraguariensis* extract at 0.2 and 2 mg/mL significantly prevented from t-BHP induced TBARS production. Additionally it significantly prevented from t-BHP-induced thiol depletion and osmotic fragility. In contrast, neither *M. ilicifolia* nor *F. vulgare* exert significant protective effect on analysed parameters. **Conclusion:** In this study we found that *I. paraguariensis* extract presented more pronounced effects, in evaluated parameters, when compared to other plant extracts.. Thus, we speculate that the effects found could be attributed to the composition of extracts, in terms of secondary metabolites. However, more studies, both *in vivo* and *in vitro*, are necessary to better understand the mechanism(s) involved in its effects, and its putative use to treat human disorders.

**Keys Words:** Free Radicals, tea and t-BHP.

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