Biochemical Analysis of the Antioxidant Properties of Mikania Glomerata Tea in vitro

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Excessive production of reactive oxygen species (ROS) may lead to a condition of oxidative stress which is a common feature in many pathologic processes. Medicinal plants are usually used to treat many human diseases. In Brazil, Mikania glomerata, popularly known as guaco, is widely used in popular medicine due to its well known pharmacological properties. The aim of this study was to analyze the antioxidant properties of the Mikania glomerata tea in vitro. The tea used was prepared with dried leaves, which were left in boiling water for twenty minutes. Before each analysis, a fresh tea was prepared. The effects of the tea on the thiobarbituric acid reactive substances (TBA-RS) levels under basal and different pro-oxidants (reduced iron – Fe$^{2+}$, sodium nitroprusside – SNP, and fenton reaction – FR) conditions in lipids of chicken egg yolk and in brain tissue of rats were analyzed. Furthermore, the levels of polyphenols and flavonoids as well as the free radical diphenylpicrylhydrazyl (DPPH$^\cdot$) reduction, the Fe$^{2+}$ interaction (chelating properties) and the nitric oxide (NO) scavenging properties of the tea were assessed. Our results show that the tea reduced the high levels of TBA-RS induced by all the pro-oxidants used both in lipids and in brain tissue. We believe that these effects are related with the significant levels of polyphenols and flavonoids observed in the tea. Moreover, the significant potential of the tea to reduce the DPPH$^\cdot$, to interact with Fe$^{2+}$, and also to scavenge NO could be understood as mechanisms of the Mikania glomerata tea antioxidant properties.

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