Antioxidant Study and Electroanalytical Investigation of Selected Herbal Samples Used in Folk Medicine

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The growing concern regarding oxidative-related cell damage has guided a myriad of investigations concerning the applicability of herbal mater to mop up reactive oxygen species generation. In this sense, the consumption of functional foods and the use of plants with antioxidant capacity are well understood in folk medicine. Thus, this work was intended to electroanalytically study tea and tincture preparations of selected herbs used in folk medicine in order to better understand their redox features. Henceforth, samples of *Cinnamomum zeylanicum* (CZB), *Pterodon emarginatus* (PER) (PES), *Cotyledon orbiculata* (COL), *Syzygium aromaticum* (SAF), *Commiphora myrrha* (CML), *Cyrtopodium punctatum* (CPR), *Uncaria tomentosa* (UTR) and *Brosimum gaudichaudii* (BGR) were also analyzed in colorimetric tests of radical scavenging activity ABTS and DPPH. Differential pulse voltammetry (DPV) measurements were performed using a potentiostat/galvanostat. A carbon paste electrode, Pt wire and the Ag/AgCl/KCl_{sat} 3 M were used as working, counter and reference electrodes, respectively. The results evidenced that CZB, PER, SAF, CML and BGR presented better antioxidant features in a tincture form, probably due to better aglycone solubilization in hydroethanolic solutions, while CPR and UTR presented better antioxidant activity in aqueous preparations because of the polyphenolic components. The highest observed peak amongst all analyzed samples was that of SAF, attesting to its high content of electroactive compounds, while BGR, COL and PER showed good distribution of all anodic peak, being all correlated to phenolic metabolites. Therefore, the antioxidant activity of these preparations changes heavily according to the employed extraction fluids, and this activity can be assessed either by electrochemical or colorimetric techniques, henceforth rendering reproducible results.

Keywords: Tea, Herbal Medicine, DPPH, ABTS, Voltammetry.

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