Short Communication

Electrochemical Study of Commercial Black Tea Samples

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Black tea (BT) is a widely consumed natural product whose myriad of therapeutic applications rely on its constituents of remarkable antioxidant power. The electroanalysis is unique to provide a precise redox characterization of samples presenting a single compound or even a pool of electroactive species. Hence, this work aims to study the BT redox profile through electroanalytical methods. Voltammetric techniques such as Cyclic Voltammetry, Square Wave Voltammetry and Differential Pulse Voltammetry were conducted in BT crude vegetal mater samples and pharmaceutical grade standardized dried extract. It was found for all BT samples two anodic processes, the first occurring at peak potentials bellow +0.5V, thus indicating a strong antioxidant activity. The results related to BT pool compounds voltammetric profile suggested that the first anodic process is reversible, whereas the second irreversible. In addition, such electron/proton transfer reactions undergo EC mechanisms, which are mostly diffusion controlled electrochemical processes. Since low anodic potential and reversible redox behavior are related to high reducing power and good regenerating ability, it can be inferred, that the recognized antioxidant activity of BT samples is undeniable.

Keywords: Free radical scavenging; black tea; redox characterization.

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