Potent 5-nitrofuran derivatives inhibitors of Trypanosoma cruzi growth: Electrochemical, spectroscopic and biological studies

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Cyclic voltammetry and electron spin resonance techniques were used in the investigation of several potential antiprotozoal containing thiosemicarbazone and carbamate nitrofurans. In the electrochemical behaviour, a self-protonation process involving the nitro group was observed. The reactivity of the nitro anion radical for these derivatives with glutathione, a biological relevant thiol, was also studied in means of cyclic voltammetry. These studies demonstrated that glutathione could react with radical species from 5-nitrofuryl system. Furthermore, from the voltammetric results, some parameters of biological significance as E71 (indicative of the biological nitro anion radical formation), and KO2 (thermodynamic indicator the of oxygen redox cycling) have been calculated. We also evaluated the stability of the nitro anion radical in terms of the dimerization constant (kd). The nitrofuran-free radicals from cyclic voltammetry were characterized by electron spin resonance. A clear depen