

Antioxidant Properties of Phthalocyanines Against SNP-induced Oxidative Stress in Mice Tissues in vitro

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Oxidative stress is related to an imbalance between the production of reactive species and the antioxidant defenses. Oxygen and nitrogen reactive species react with unsaturated fatty acids in cell membranes promoting a process called lipid peroxidation. This can induce several impairments on cell function, culminating in cell death. It has been suggested that oxidative stress, which is present during normal cell metabolism, is exacerbated and involved in the etiology of several chronic diseases including cardiovascular disease, diabetes, cancer and neurodegenerative processes. Antioxidant intake has emerged as a remedy for pathological conditions characterized by oxidative stress. In this way, it is important to find new compounds with antioxidant properties. In this work, we have evaluated the possible antioxidant capacity of six different phthalocyanines (Fc), which are synthetic dyes similar to porphyrins, in decrease the TBARS formation induced by sodium nitroprusside (SNP) in different mice's tissues in vitro. Our results showed that some Fc present a significant antioxidant activity in protect from the SNP-induced oxidative damage in liver, kidney and brain of mice . In liver and brain, FcMn was able to reduce the TBARS formation at concentrations from 1 μ M to 100 μ M. At the concentrations of 50 μ M and 100 μ M, FcCu was also able to reduce the TBARS formation in liver, brain and kidney. Other Fc did not show any protection against SNP-induced damage. In conclusion, Fc which contain either Cu or Mn in its structure showed to be promissory compounds with a potential antioxidant activity.

Key words: Phthalocyanine, oxidative stress, sodium nitroprusside

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