

Neem Seed Oil Protects Isolated Rat Liver Mitochondria against Oxidative Damage induced by Fe²⁺

Faria, P.A.¹, Moraes, A.A.¹, Guimarães, N.S.S.¹, Ambrosano, E.A.P.², Nantes, I.L.¹, Rodrigues, T.^{1*}

¹Centro Interdisciplinar de Investigação Bioquímica (CIIB); ²Laboratório da Fundação, Universidade de Mogi das Cruzes (UMC), Mogi das Cruzes, São Paulo, Brazil.

Neem (*Azadirachta indica* A. Juss., Meliaceae) is a native Indian tree popularly used as medicinal plant or insecticide. Several studies have shown the biological effects of the Neem seed oil, however few data are available about its antioxidant activity. Mitochondria are an excellent biological system to study oxidative stress because they are source and target of free radicals. In this work, we investigated the antioxidant activity of Neem seed oil in isolated rat liver mitochondria. Neem seed oil inhibited the Fe²⁺/citrate-induced mitochondrial membrane lipid peroxidation and hydrogen peroxide generation without promoting uncoupling and iron depletion via chelating properties. The ability of Neem seed oil to inhibit the Fe²⁺/citrate-induced lipid peroxidation in PCPECL liposomes suggested that the antioxidant activity exhibited by Neem seed oil comes from the free radical scavenger. Further EPR studies are necessary to elucidate the free radical types scavenged by Neem seed oil components. Keywords: Neem, antioxidant activity, mitochondria, free radical scavenger. Supported by FAPESP, CNPq and FAEP-UMC.