



Scavenging and antioxidant potential of physiological taurine concentrations against different reactive oxygen/nitrogen species

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Abstract:

While several studies have been conducted on the antioxidant properties of the β -amino acid taurine, these studies all used concentrations lower than what is found physiologically. This study investigates the scavenging and antioxidant properties of physiological taurine concentrations against different reactive species. No reactivity between taurine and hydrogen peroxide was found; however, taurine exhibited significant scavenging potential against peroxyl radical, nitric oxide, and superoxide donors. This study also evaluated if taurine was able to minimize the *in vitro* CuZn-superoxide dismutase damage (SOD) induced by peroxynitrite. Taurine prevented both the formation of nitrotyrosine adducts and the decrease in SOD activity caused by peroxynitrite. In addition, taurine prevented the *ex vivo* damage caused by *tert*-butyl hydroperoxide in rat liver slices. These experimental data show that taurine, at different physiological concentrations efficiently scavenges many reactive oxygen and nitrogen species. This finding supports the hypothesis that the antioxidant properties of taurine may be critical for the maintenance of cellular functions, and it suggests a more important function of taurine that requires further investigation.

Key words:

taurine, scavenger, antioxidant, physiological concentrations
