THE EFFECT OF ORGANOCHALCOGENS IN LACTATE DEHYDROGENASE ACTIVITY.

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Organic forms of selenium and tellurium have been pointed out as possible antioxidant agents because they exhibit glutathione peroxidase-like activity and oxidizing -SH during the reduction of H_2O_2. The mechanism(s) underlying either the toxic or protective effect of organochalcogens are not completely understood but certainly involve the reaction of chalcogenides with endogenous thiols. Dehydrogenases containing zinc as a functional component on the active site, like LDH, can be inhibited by sulfhydryl-binding reagents. We evaluated the effect of diphenyl diselenide (10μM, 20μM, 30μM and 40μM), diphenyl ditelluryde (40μM, 60μM, 80μM and 100μM) and ebselen (2μM, 10μM and 20μM) in lactate dehydrogenase of liver and heart of rats and in the purified enzyme from rabbit muscle. LDH activity was monitored spectrophotometrically by the rate of increase in absorbance at 340 nm at 30°C resulting from formation of NADH. The results show that both three compounds significantly decreased ($p<0,05$) the LDH activity at a concentration dependent manner, when compared to the control. In conclusion, the results of the present study suggest that organochalcogens such as diphenyl diselenide, diphenyl ditelluryde and ebselen present inhibitory effect in LDH activity by oxidizing its thiol groups *in vitro*.

Key words: lactate dehydrogenase, organochalcogens, thiol groups.