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ANTIMUTAGENIC STUDY OF SELENIUM COMPOUNDS

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Selenium is an essential nutritional element for several animal species and human. It has been also seen, that low levels of selenium in the diet can cause many diseases. This metalloid was defined like a "double face" element because it possesses antioxidant, antimutagen, anticarcinogen but also mutagenic and carcinogenic effects. The most important metabolic role of selenium in the animal species is its presence in the Glutathione Peroxidase (GSH-Px). This enzyme is a lipid antioxidant and together with vitamin E it removes organic cellular peroxides.

Sodium-selenite and seleno-DL-methionine, compouds assayed in this work, posses antimutagenic and anticarcinogenic properties, also it is not yet elucidated the mechanisms by which these selenium compounds exert their effects. Short term tests with yeast cells were carried-out using cells harvested both from stationary and logarithmic growth phase. Both compounds resulted toxic and mutagen with a different degree, at specific concentrations. In antimutagenesis experiments, using hydrogen peroxide as positive control, both sodium selenite and selenium methionine posses antimutagenic effect in logarithmic phase cells, while they have no effect on stationary phase. To explain selenium effect on damage induced by free radical, several enzymatic activities SOD, CAT and GSH-Px have been measured. Sodium selenite and selenium methionine were assayed at different concentrations and they showed that compounds assayed activated SOD, CAT and GSH-Px.