

Strek, M., Telesinski, A. Change in Oxidoreductase Activity of Selected Microbial Enzymes in Gasoline-contaminated Light Soil in Presence of Selenium. *Ochrona Srodowiska* 2015, Vol. 37, No. 1, pp. 43–47.

Abstract: The effect of gasoline as a function of selenium (IV and VI) on activity of four oxidoreductive enzymes produced by soil microorganisms (dehydrogenase, catalase, o-diphenol oxidase and peroxidase) was assessed in laboratory settings. The experiment was carried out on loamy sand with organic carbon content of 8.7 gC/kg. Different combinations of gasoline (0.2%, 1% and 5%) and selenium (IV and VI) in the amount of 0.05 mmol/kg were used. The activity of oxidoreductases was determined in all the combinations tested after 1 to 112 days of the experiment. The presence of selenium (both oxidation states) eliminated impact of gasoline on soil dehydrogenases and peroxidases, enzymes characteristic for intact cells, protecting against reactive oxygen species and involved in humification. Selenium compounds were demonstrated to limit negative effect of petroleum products on metabolism of soil microorganisms.

Keywords: Petroleum products, soil pollution, dehydrogenases, catalase, peroxidase, o-diphenol oxidase.