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Influence of selenium compounds on the oxidoreductive potentials of *Brassica campestris* cv. chibu

Han-Chul Kang*, Seok-Cheol Suh

Transgene expression team, National Institute of Agricultural Biotechnology, Rural Development Administration, Suwon 441-707, Korea (*hckang@rda.go.kr)

Bimodal effect of selenium which has been well known in animal was examined using cabbage grown with various seleniums. Higher concentration (approximately 400-500 ug/L) of selenium dioxide, selenium selenite, and selenium selenate inhibited the growth of cabbage, whereas organic seleniums, selenomethionine and selenocystine, did not considerably influenced the growth. DPPH scavenging activity gradually decreased at lower concentration (below 200 ug/L) of inorganic seleniums and the activities increased at higher contents of the seleniums. Catalase activity began to markedly increase from about 300 ug/L of the seleniums. Activities of glutathion peroxidase and glutathion reductase only increased at lower concentration of seleniums and thereafter decreased. Glutathion concentration was slightly increased in response to the seleniums. Superoxide dismutase activity decreased at lower concentration of seleniums and markedly increased at higher concentration. Collectively, the activities of oxidoreductive enzymes which are mainly involved in the antioxidant reaction were significantly changed in response to the applied seleniums. Higher absorption of inorganic seleniums appears to act as a stress factor but appropriate subjection in plant can be involved in the reduction of stress.

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