Selenium (Se) has several essential functions related to both animal and human health. Since plant Se is the dominant source of Se supply for animals and humans, it is important to study the uptake and accumulation of Se in plants, which is governed by a number of soil and plant factors. Both selenite and selenate are the inorganic Se forms present in soils, and selenate occurs as the dominant species in soil solution under aerobic conditions. Selenite has been used as Se fertilizer for enhancing Se level in plant crops. Many earlier researchers reported that the mechanism by which the uptake and transport Se in plants takes place in the presence of selenate is different from the mechanism in the presence of selenite. The addition of Se increased its relative incorporation in soluble and insoluble proteins and diminished it in free amino acids. In particular Se is a key component of various selenoproteins including the glutathione peroxidase.

It has been reported that glutathione peroxidase activity increased with Se-fertilization, whereas superoxide dismutase activity as well as the vitamin E content decreased. We aimed to study the influence of Se on other antioxidant components in plants. In this work we studied the effect of selenite and selenate at different concentrations (5 and 10 mM) on the ascorbic acid content in Senecio scadens L. leaf discs at 24 and 48 hours, respectively. In addition, since the chlorophyll content reflects the overall status of growth and photosynthetic productivity of plants, the effects of selenite have been studied on the content of chlorophyll too. The experiments have shown that after 48 h of treatment with 10 mM selenite the ascorbate pool (ascorbate plus dehydroascorbate) and total chlorophyll significantly increased compared to control.

These preliminary data suggest that selenite but not selenate affects the redox state of ascorbate and the content of chlorophyll in Senecio scadens leaf.