

Abstract

This bachelor thesis is devoted to the phytoextraction of triazoles, anastrozole and letrozole, which are classified as third-generation non-steroidal aromatase inhibitors. Individual phytoextraction experiments were performed on maize (*Zea mays*) plants cultured in the sterile medium. In both experiments, the phytoextraction efficiency in the extracted samples was determined by HPLC with a UV detector at a wavelength of 215 nm. The phytoextraction efficiency of anastrozole was 0,067 mg per 1 gram of fresh weight (FW). The phytoextraction efficiency of plants for letrozole was 0,082 mg/g(FW). In the determination of extractable residues from plants, higher concentrations of the pharmaceutical were measured in the roots of contaminated plants. The highest concentration was determined in the roots of letrozole-contaminated plants at 0,0034 mg/g(FW).

Biochemical analysis of the plants was also done, the amount of proteins was measured by the Bradford method, where there was a decrease in protein content in the leaves of plants cultivated with the drugs. The activity of total and membrane-bound peroxides was increased in most cases compared to the control group, the highest increase was observed in the determination of membrane-bound peroxides in the roots of plants cultured in anastrozole medium. An increase in activity was also observed in the determination of ABTS-peroxidase in contaminated plants. The activity of guaiacol peroxidase was also measured. The effect of the presence of the pharmaceutical showed an increase in activity and a change in the number of individual isoforms of peroxidases and glutathione-S-transferase after native electrophoretic separation. Most isoforms of glutathione-S-transferase were detected in the roots of plants cultured in anastrozole medium.

Key words: phytoremediation, phytoextraction, plant enzymes, extractable residues, pollutants of ecosystems