

ABSTRACT

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Title of diploma thesis: Environmental risks of anthelmintics

Anthelmintics are drugs used in human and veterinary medicine for the treatment and prophylaxis of infectious diseases caused by parasites- helminths. They are admittedly beneficial to the treated organisms. However, their overall effect on the ecosystem has not yet been sufficiently explored. Anthelmintics, together with their metabolites, enter the environment in multiple ways. One possibility is directly through urine and excrements of treated livestock or indirectly by leakage of contaminated manure into surface and groundwater. Such pollution has an effect on various animal organisms and plants that have the ability to uptake xenobiotics and remove them through metabolic pathways.

The aim of this work was to investigate the effect of antihelmintics ivermectin and fenbendazole on soybean plants (*Glycine max*). We investigated the concentration of total phenolic compounds spectrophotometrically using the Folin-Ciocalteu method. Using the colorimetric method of aluminum chloride, we found the concentration of flavonoids in soybean plants. The concentration of isoflavons- genistein, daidzein, and glycitein was determined by HPLC method.

We found that both ivermectin and fenbendazole affect the concentration of phenolic compounds, when both the fenbendazole-treated and ivermectin-treated samples showed decreased phenol content. The effect of ivermectin and fenbendazole on total flavonoid content cannot be unequivocally confirmed. The content of flavonoids was decreased in some parts of the plant and increased in others. The concentration of selected isoflavones was measured using HPLC, but most of them was below the detection limit, so it was not possible to assess the effect of ivermectin and fenbendazole on their concentration.