

ABSTRACT

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Anthelmintic drugs are used for anti-parasitic treatment of animals worldwide. This treatment is generally effective but there is a risk of spreading these drugs and their metabolites through feces to the environment. That can have some harmful effects to non-target species including plants.

In this study, we focused on the uptake of anthelmintics from soil to crops, specifically albendazole and its primary metabolite ricobendazole, and their subsequent accumulation in plants. For this project, we have chosen commonly grown farm crops – radishes, carrots, lettuce and tomatoes. The plants were grown in soil enriched with anthelmintics. After harvesting, the plants were freeze-dried, the anthelmintics were extracted and their content in the roots, or leaves (lettuce) or fruits (tomato) was determined using liquid chromatography coupled with mass spectrometry (LC-MS).

The results of this study indicated a certain risk of uptake of anthelmintics from soil to plants. Albendazole metabolites were detected and quantified in tomato and lettuce roots. A certain concentration of ricobendazole was detected in radish and carrot roots, as well as in lettuce leaves but could not be quantified because its concentration was below the limit of quantification.