

ABSTRACT

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Anthelmintics enter into environment mainly through excretion of treated animals. They may cause a lot of adverse effects in ecosystem as they can affect non-target animals or they can accumulate in plants. Further, after consumption of these plants by livestock on pastures the resistance of helminths can be induced. Therefore, the present study was designed to find out biotransformation of frequently used anthelmintics flubendazole (FLU), albendazole (ABZ), fenbendazole (FBZ), ivermectine (IVM) and monepantel (MOP) by the common meadow plants harebell (*Campanula rotundifolia*) and plantain (*Plantago lanceolata*), which may often come into contact with anthelmintics through the excrements of treated animals. As model systems, suspensions of harebell and plantain cells and *in vitro* regenerants of plantain were used. There was no toxic effect of anthelmintics for these plants; they were able to metabolize anthelmintics into a wide scale of various compounds. These metabolites were identified by ultrahigh-performance liquid chromatography coupled with high mass accuracy tandem mass spectrometry (UHPLC-MS/MS). The differences in the ability to metabolize individual anthelmintics were found between these two species, especially in the amount of the final metabolites. Based on the obtained results, the schemes of the metabolic pathways of these anthelmintics were proposed. Most of these metabolites can be considered as deactivation products, but a substantial part of them may be readily decomposed to biologically active substances which could negatively affect ecosystem.