

Molecular interactions of fungi with uranium^{VI} studied by microscopic and spectroscopic methods

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Fungi play an important role in the microbial community of soil and their metabolic processes can influence the migration of radionuclides in the environment by different interaction processes like mainly sorption, accumulation or mineralization. The immobilization of radionuclides reduces their mobility, which thus prevents also the entry of radionuclide into the water pathway and into the food chain.

For this reasons the aim of this study is to determine the potential of fungi for precautionary radiation protection methods and bioremediation procedures for contaminated soils. In the assessment of the suitability of fungi, the first step is to investigate the molecular interactions with radionuclides in more detail to identify dominant interaction processes. Therefore, binding experiments with different initial conditions were performed and the molecular binding form was investigated with time-resolved laser-induced fluorescence spectroscopy. Furthermore, TEM-EDX analyses were used to determine whether immobilization takes place within the cell or on the cell surface.