

Extracellular defence reactions of rape cells caused by uranium exposure.

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Uranium is a widespread radioactive toxic heavy metal, released into the biosphere mostly by military purposes and nuclear industry. It is taken up by plant root systems and its chemical toxicity is much more dangerous than the radiological. Thus cell suspensions of rape (*Brassica napus*) revealed specific extracellular defence reactions after uranium exposure. These include characteristic pH-shifts of the culture medium caused by contact with the heavy metal. At the same time a transient release of fluorescent compounds from the cells occurred. These phytoalexins probably belong to the widespread group of flavonoids detected by HPLC and thin layer chromatography (TLC). They are able to interact with uranium and hence can protect the cell against heavy metal poisoning. To gain an insight in these interactions time-resolved laser-induced fluorescence spectroscopy (TRLFS) was performed. Further investigations are under way to identify intracellular defence mechanisms, e.g. spatial patterns of a possible cytoplasmic pH-shift, the formation of proteins possessing thiol groups (phytochelatins), respectively.