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CELL SUSPENSION CULTURES AS A MODEL IN STUDIES OF PLANT TOLERANCE TO HEAVY METALS

Summary

Soil pollutants exert toxic effects on plants, animals and humans. Metallophytes, plants tolerant to heavy metals colonizing polluted areas, are being used to phytoremediation – cleaning up soil contaminated with heavy metals.

The use of plant cells *in vitro* cultures to study heavy metal toxicity and tolerance is a relatively new approach in research of metal toxicity. In this paper the usefulness of plant suspension cultures to study the impact of heavy metals on cells is presented alongside with the methods of obtaining suspension cultures, evaluation of cell viability, metal accumulation and detection of programmed cell death (PCD). The mechanisms by which cells of plant species tolerant to heavy metals develop resistance to metal toxicity are discussed. Cell suspension cultures appear to be a good model to study tolerance to heavy metals because they allow to estimate metal impact to a single cell in stable uniform conditions.

Key words: cell viability, heavy metals, metallophytes, programmed cell death, suspension culture