

Abstract

Cadmium, lead and zinc are taken up by plants from soil and atmosphere. Afterwards, they are redistributed within the plant body and often deposited in the parts that are processed in the food industry. Vegetal food therefore considerably contributes to the acquisition of essential zinc, but also to the accumulation of toxic cadmium and lead in the human body. As zinc deficiency and, on the other hand, cadmium and lead intoxication are global problems, accumulation of these metals is a topical issue. Increase in zinc deposition and decrease in cadmium and lead accumulation can be reached not only by traditional breeding and soil modification, but also by gene engineering methods. Soon, Zn-biofortified crops prepared via traditional breeding will be tested on a large-scale; overexpression of zinc ligands is researched as well. However, use of cisgenic or transgenic expression of plant metal transporters is currently a rather unexplored topic; yet it has the potential to target both the need for Zn-biofortification and decrease in cadmium and lead accumulation in edible parts of crops.