

Plants, similarly to animals, are exposed to heavy metals emitted to the environment due to our industrial and agricultural activities. Among toxic environmental contaminants cadmium (Cd) belongs to the most dangerous. All organisms developed mechanisms enabling them to limit toxic cadmium effects. We know that Cd affects strongly photosynthetic carbon fixation. Autotrophic plants are able to fix carbon dioxide and produce carbohydrates in photosynthesis and this process takes place mainly under exposure to light but some reactions can be performed also in darkness (CAM plants). Ice plant (*Mesembryanthemum crystallinum*) belongs to plants that are able to fix carbon dioxide in light as well in darkness. The ability to fix CO₂ in darkness is present in all plants and in ice plant this process can be very intensive. This is why many researchers perform experiments just with this plant material. In addition, our model is a facultative halophytic plant able to remove NaCl as well as some metals from the soil. Such hyperaccumulators may be used in bioremediation. Most CAM plants are known also as plants with increased oxygen level in their tissues which can be transported to the roots. These plants also produce large amounts of bicarboxylic acids as malate and citrate which help plant to fix, transport and store heavy metals within the plant body. Oxygen can also support bacteria and fungi growing in the rhizosphere where bicarboxylic acids can be exudated and then fix heavy metals in the soil. We know that Cd toxicity depends, among other factors, on its transport activity within the plant body and disturbance of the chloroplastic electron transport chain. Using plants that are able to fix carbon dioxide during the day or during the night and by analyzing proteins responsible for their transport through membranes we will be able to define if Cd-caused effects are regulated by light dependent processes. Confirmation of these dependencies will help us to understand many interdependencies observed earlier on crop plants and to use this knowledge in improving plant resistance to Cd and also to other heavy metals.