CADMIUM ACCUMULATION IN LEMNA MINOR IN RESPONSE TO HIGH CO₂ ENHANCED PHOTOSYNTHESIS


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Lemna minor is a freshwater angiosperm with a worldwide distribution. It is a free-floating plant, easy to culture in laboratory and it is reported to be an effective decontaminant of waste waters from many xenobiotics and some heavy metals such as Cd. It has been used as an experimental model system to investigate heavy metal induced responses. This species takes up nutrients and all chemicals in the growth medium directly into the lower surface of its green fronds. In this work we have investigated the factors influencing the response of sulphate metabolism to Cd and its interaction with photosynthesis. The sulphate uptake and reduction are essential to detoxify Cd but are also energetically very expensive and thus require an efficient and active photosynthesis. We studied the response of Lemna minor to excess Cd correlated with an enhancement of photosynthesis by high ambient CO₂ increments with reference to bioaccumulation of Cd. Furthermore, we followed the photosynthetic activity with or without Cd and in contemporary presence of glyceraldeide, analysed the total glutathione content and phytochelatin (PC) synthesis.