Study of the efficiency of duckweed (*Lemna minor*) in removing of heavy metals in aqueous solutions

Dariush Naghipour[1]
Kamran Taghavi[1]
Shahram Sedaghathoor[2*]
Marzieh Vaezzadeh[1]

1. School of Health, Guilan University of Medical Science, Rasht, Iran
2. Faculty of Agriculture, Rasht Branch, Islamic Azad University, Rasht, Iran

[*]**Corresponding author**
Sedaghathoor@iaurasht.ac.ir

Received date: 2014.12.18
Reception date: 2015.06.02

Abstract

Heavy metal pollution is an and developing problem in the world. Heavy metals such as lead, copper, cadmium and nickel are among the most common pollutants found in industrial wastewater. The main purpose of this study was to determineing the efficiency removal of heavy metals includes of lead, cadmium, nickel and chromium in aqueous solutions using Duckweed. Also, the inhibitory effect of heavy metals on plant growth was also examined. Applied research is based on empirical studies. In this study, heavy metal solutions were prepared at concentrations of 10 milligrams per liter. To contact the crockery plant with heavy metal solutions were used. Duckweed weight (0.8grams) was added to the containers. After a contact time of 10 and 15 days, the amount of heavy metals remaining in solution was measured by ICP instrument at the Rasht Health Department. After this time Duckweed weight was also measured. The results showed that the contact time of 10 days every 4 heavy metal removal efficiency greater than 15 days. The removal of lead is greatest (87.83%) and the removal of Chromium is lowest (61.94%). The maximum removal of lead and cadmium and nickel is related to. The study also showed that each of four heavy metals decreased the growth of Duckweed screw. This slowdown is greater for chromium. Results showed that heavy metals removal is possible with Duckweed. Factors affecting the rate of removal are appropriate time and type of metal. The removal of lead was greatest and the removal of Chromium was the lowest.

Keywords: Heavy metals, Duckweed, Aqueous solutions.