Considering the removal of Heavy metals, Cd, Pb, from water by dead macro algae, Sargassum, as bio sorbent for future application in industrial wastewater treatment

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Abstract

In this study, the ability of dried Sargassum macro algae as adsorbents was investigated for removal of heavy metal pollution. The main objectives of the present study are considering removal of heavy metals by bio-adsorption, analysis of data, comparing them with other relevant research and also considering the potential of industrial utilization of the result of this research in different related industrial plants.

In this investigation, the initial condition was selected based on 10 g L^{-1} dried algae per element, laboratory temperature (25±3ºC), metal concentration of 10 ppm and mixing for one hour at160 r.m.p by magnetic mixer.

The result of this study showed that optimal condition to remove Cd and Pb from contaminated or polluted water is pH=5, contact time of 30 minute and using 5 g L^{-1} per element bio-sorbent dose. Maximum capacity of dried Sargassum with grain size of 250 micron in the mentioned optimize condition was 95 mg g^{-1}.

The results revealed that dried and powdered Sargassum macro algae have higher potential to adsorb cadmium contamination and pollution than lead.

Keywords

Bio adsorption, Heavy metal contamination and pollution, Sargassum macro algae, Qeshm