

عنوان مقاله:

Dried Seaweed (*Sargassum ilicifolium*) as an Adsorbent for Phosphorous Removal from Aqueous Solutions

محل انتشار:

مجله تحقیقات زیست شناسی، دوره 1، شماره 2 (سال: 1396)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Mahmoud Hafezieh - *Iranian Fisheries Sciences Research Institute (IFRSRI), Agricultural Research, Education and Extension Organization*

Morteza Hosseini - *Inlan Water Aquatic Stock Assessment, Gorgan*

Hamidreza Rezaii - *Faculty of agriculture, University of Gorgan*

خلاصه مقاله:

Aquaculture is a source of significant amounts of wastes, which generally leads to deterioration of water quality. Removal of phosphorous (P) from aquaculture wastewater is an important environmental challenge. In the present study, efficacy of dry sea weed (*Sargassum ilicifolium*) to remove water P was investigated under laboratory conditions. Several levels of medium pH (3.5-10), initial P concentration (0.015-0.45 mg/l), contact time (7-60 min), particle size (0.5-5 mm) and the seaweed particle concentration (10-40 g/l) have been monitored. The results showed a high efficiency of the sea weed to remove water P under different conditions (83.1-97.7% P removal). Among the tested pH, 3.5 had the lowest P removal. P removal linearly increased along with time progress. The lowest P removal was observed in the lowest initial P concentration (0.015 mg/l), however, there was no significant difference among the groups with initial P concentration of 0.015-0.45 mg/l. P removal in 10 g/l seaweed concentration was significantly lower than those of 20 and 40 g/l. P removal significantly increased with decrease in seaweed particle size. Regression analysis showed that the weight of factors to remove P from the medium was as follows: particle size ($\beta = -0.659$) > particle concentration ($\beta = 0.427$) > time ($\beta = 0.227$) > initial P concentration ($\beta = 0.190$) > medium pH ($\beta = 0.113$). In conclusion, dry *S. ilicifolium* is capable to efficiently remove P from wastewater at aquaculture-relevant concentration. The P removal capability of the seaweed markedly increases by decrease in particle size and increase in particle concentration in medium.

کلمات کلیدی:

Uptake, Phosphorus, Wastewater, Seaweed, Adsorption

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1267954>

