

УДК 543

EFFICIENCY OF DIFFERENT PARTICLE SIZES OF DRIED SALVINIA NATANS IN THE REMOVING OF Cu(II) AND OIL POLLUTIONS FROM WATER

Aly-Eldeen Mohamed Abd-Elnaby, M. A. Egorov

State University, Astrakhan, Russia

Received 30.11.2011

Aquatic plants can be useful in removing various contaminants from contaminated waters, since they can sorb large amounts of heavy metals and oil spill. To investigate the effects of different particle sizes of biosorbent on the metal biosorption and oil spill capacities, dried biomass of Salvinia natans selected as aquatic plant which found a lot in astrakhan city. From the results we concluded that, the metal biosorption capacity increased with decreasing of particle size, while in the case oil spill, capacities of removing of spill increase with increasing particle sizes.

Key words: biosorption, heavy metal, oil spill, Salvinia natans.

1. Introduction

The use of aquatic plants in water quality assessment has been a common practice for years in-situ bio-monitors (sentinel species). Overviews of this use have been presented earlier [1 – 3]. Aquatic plants have also been used frequently to remove suspended solids, nutrients, heavy metals, toxic organics, and bacteria from acid mine drainage and agricultural, landfill, and urban storm-water runoff [4].

Among these prospected plants in the field of purification of aquatic environment from heavy metal and oil spills is Salvinia natans.

Salvinia natans, a small free-floating aquatic fern with branched creeping stems bearing hairs but no true roots. Leaves basically two types- upper green (photosynthetic) and lower submerged (hairy) bear sori that are surrounded by basifixed membranous indusia (sporocarps). Leaves are present in whorls at each node [5]. It has the potential to be used in constructed wetland systems for wastewater treatment at it a very high growth rate in nutrient-rich and stagnant waters [6 – 9] and as the produced biomass can easily be harvested.

Among all the environmental pollutions, pollution of water resources is a matter of great concern. Poor and developing countries are at high risk due to