

CAPACITY OF *LEMNA MINOR* FOR NITROGEN BIOACCUMULATION FROM WASTEWATER OF A RECIRCULATING AQUACULTURE SYSTEM

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Abstract

In order to capitalize on the nitrogen resulting from feed residues and detritus of fish reared in a recirculating system, the technological drainage water was inoculated, in 3 aquariums, with 50 plants belonging to the Lemna minor species. After 31 days, the amount of nitrogen (as nitrate, nitrite, ammonium and ammonia) in the water was quantified. The difference between the initial and final amount of nitrogen compounds is the degree of bioaccumulation of nitrogen in the tissues of Lemna minor. The average absorption reached the value of 70.88% nitrogen accumulated from the aquatic environment. Both the dry mass increased from $4.4 \pm 0.1\%$ to $5.1 \pm 0.1\%$ and the plant protein content from $39.1 \pm 0.4\%$ to $43.6 \pm 0.3\%$. The plant can be used successfully both to improve the aquatic environment and to transform nutrients from water (nitrogen) into compounds that can be reintroduced into the technological chain (proteins that can be used in fish feed).

Key words: phytoremediation, nutrient accumulation, wastewater, recirculating system