

CHEMICAL COMPOSITION OF *Eichhornia crassipes* AND *Pistia stratiotes*

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In Uzbekistan, methods have been developed for the mass cultivation of *Eichhornia crassipes* and *Pistia stratiotes* and the possibilities of the practical use of these plants for purifying the effluents from animal rearing complexes (pig complexes, poultry farms, bast factories) and as feedstuffs for agricultural animals and poultry have been examined.

Large-scale investigations over many years on the cultivation of water plants on various effluents have shown that they give an increase in biomass of up to 1 kg/m² and more per day, which amounts to 1800—2700 tonnes of raw material or 90—135 tonnes of absolutely dry weight per 1 ha of water surface per season. The biomass contains many useful substances [1]. The polysaccharide compositions of the plants mentioned have been studied [2] and there is information on their use in various branches of the national economy [3].

We have studied the chemical composition of plants growing in the effluents from the industrial production of nitrogenous fertilizers. The amounts of useful substances in the biomass differed. We investigated the chemical composition of the flour obtained after the thermal treatment of the biomass in a an AVM-0.65 or AVM-1.5 unit as described in [4] (Table 1).

In the *E. crassipes* material, proteins, NNES, and cellulose predominated, while the *P. stratiotes* material contained more fat and ash, which was due to the ecological-biological features of the plants in their demand for various chemical compounds.

A large amount of carotene was detected in the plants studied. They were rich in proteins, carbohydrates, lipids, vitamins, and various mineral substances. Their mass cultivation in the water bodies of Uzbekistan will make it possible to use the biomass at the level of 10% in fodder concentrate in the ration of agricultural animals and poultry as a cheap supplementary feedstuff containing useful substances in adequate amounts.

As a result of chemical-toxicological investigations carried out in association with workers of the Republican control and production laboratory of the GAK Uzkhleboprodukt combined fodder industry, no pesticides, mitotoxins (aflatoxins), nitrates or nitrites were found in the biomass of either plant. In a mycotoxicological investigation no toxic fungi were isolated, and a biotest on the skin of rabbits was negative. In a bacteriological investigation no pathogenic microflora was isolated. Thus, the biomass of these plants can be recommended for the production of granulated feeds.

TABLE 1

Plant	Protein	Fat	NNES	Cellulose	Ash	Calcium	Phosphorus	Carotene, mg/kg
<i>E. crassipes</i>	21.2	7.09	22.95	22.46	19	0.59	0.58	332
<i>P. stratiotes</i>	20.2	8.38	13.24	21.8	26.2	0.69	0.59	341

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