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FORAGE WATER PLANTS IS THE KEY TO IMPROVING FISH PRODUCTIVITY

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Annotation
The article presents the data of aquatic plants that are used for fodder purposes to increase the productivity of fish. in the example of an aquatic plant duckweed minor, data on the chemical composition of aquatic plants are described.

Keywords: aquatic plants, vitamins, proteins, ash, mineral salts, duckweed minor, productivity.

The forage base, as is known, is created on the basis of fodder production and foraging. Both in fodder production and in fodder production, so far in Uzbekistan, as in other republics of our country, land plants have been mainly used. Aquatic plants, as sources of fodder, were either not used at all or were used extremely insufficiently. In Uzbekistan, the total area of lakes and spills exceeds 8000 sq. km, and the total length of the hydrographic set is more than 170 thousand km. Some reservoirs in Uzbekistan occupy more than 94.60 sq. km of area.

In the valleys of the Syrdarya and Amudarya, there are numerous lakes - oxbow lakes. In the peripheries of the main oases (Fergana, Tashkent, Khorezm, etc.), the areas of so-called waste water bodies are expanding from year to year. The development of collectors and drainage systems in the irrigated areas of Uzbekistan contributes to the formation of numerous lakes in the periphery of oases. All these reservoirs are shallow (0.5 - 4 m) and rich in organomineral nutrients. Many of them are heavily overgrown with algae and higher aquatic plants.

According to some data (Muzafarov, 1965), more than 100 species of wetland plants are found in the water bodies of Uzbekistan, many of them are characterized by valuable fodder properties and are distinguished by high biological productivity. So reeds in our conditions during the growing season can produce up to 250 tons of wet weight or up to 100 - 110 tons of dry, cattails - 50 - 120 tons of wet weight or 10-12 tons of dry, hornworts - 60-800 tons of wet weight or 6-25 tons dry, pondweeds - about 20-40 tons of wet weight or 2.5 -3.5 tons of dry matter per 1 ha of water surface. We cannot name a single plant in our field cultivation that provides as much organic biomass during one growing season as aquatic plants can produce during this period, moreover, without any special care (Muzafarov, 1965).

The abundance of sunlight, warmth and the presence of nutrient-rich reservoirs are what determine the high productivity of many wetland plants in Uzbekistan.

Aquatic plants are rich sources of nutrients - proteins, fats, carbohydrates, mineral salts.

In terms of the amount of protein contained, aquatic vegetation is not inferior to such types of cultivated plants as vetch, alfalfa, timothy grass, etc. (Deeva, 1968). So, for example, according to the analyzes of individual researchers, duckweed contains up to 30.4% of crude protein,

pondweed - 18-22%, arrowheads - 20-22% (Smirensky, 1952; Masliev and Gorbachev, 1355; Deeva, 1968).

Studies show that many wetland plants are highly edible by herbivorous fish, poultry, and other animal species. According to some experimental data, the use of natural fodder reserves of reservoirs in poultry farming allows saving up to 35-45% of concentrated feed (Tazhibaev, 1966; and others). At the Department of Biotechnology at the Faculty of Agronomy and Biotechnology of the Bukhara State University, Professor S.B. Buriev and his doctoral students A.M. Kobilov, L.T. Yuldashov and Sh.R. Uzbekistan, in particular the Bukhara and Khorezm regions. Scientific work is being carried out on plants like duckweed and chlorella. An agreement has been drawn up with several farms to improve the productivity of fish in artificial lakes and pools. Since these aquatic plants and algae actively influence the development of herbivorous fish and improve their fertility.

Lesser duckweed -Lemna minor - a perennial aquatic plant, belongs to the species of the genus Duckweed -Lemna, subfamily Duckweed family Aroid, or Aronnikovye-Araceae, previously this subfamily was isolated in a separate family. There are often so many of these plants that they completely cover the reservoir. Lesser duckweed is very rich in nutrients, in an absolutely dry mass it contains: 41.1% ash, 13.8% protein, 1.6% fat, 14.7% fiber, 28.8% BEV.

Nitrogen-free extractive substances (NES), the name of a large group of nitrogen-free organic substances, with the exception of fat and fiber, products of carbohydrate metabolism in plant and animal organisms. The BEV group includes sugars such as glucose, fructose, sucrose, maltose, lactose, starch, inulin, hemicelluloses, pentosans - derivatives of pentoses and hexosans formed by hexoses, pectin substances and similar mucus and gums, as well as lignin, glycosides, tannins. substances, some plant pigments. The content of BEV in feed is usually determined by subtracting from the total mass of the nutrient (100%) the content of crude protein, fat, fiber, ash and water. The biomass of duckweed contains 30-32% proteins, 4-5% crude fat, 30-35% starch. Protein in duckweed is % 12-14 more than in wheat and 18-20% more than in corn. Duckweeds are also rich in vitamins. Carotene, vitamins B, E, PP, etc. were found in them. The nutritional value of duckweed is determined not only by their exceptionally rich content of proteins, carbohydrates, fats, vitamins, but also by their rich mineral composition. Carotene, vitamins B, E, PP, etc. were found in them. The nutritional value of duckweed is determined not only by their exceptionally rich content of proteins, carbohydrates, fats, vitamins, but also by their rich mineral composition. They found 1.1-6% calcium, 0.48 - 2.28% phosphorus, 0.35 - 2.11% magnesium. The content of sulfur in duckweed is 5-6 times higher than in cultivated fodder grasses. It is known that sulfur is a part of some of the most important essential amino acids for animals: methionine, cystine, and cysteine (Sukhoverkhov, 1964). In the biomass of duckweed, there are also many different microelements. In the biomass of duckweed, there are also many different microelements. One kilogram of dry weight contains 0.48 mg of cobalt, 0.18 mg of bromine, 0.32 mg of copper, 0.7 mg of nickel, 4.8 mg of titanium. The content of manganese, iodine, zinc, vanadium, zirconium, cerium and even gold has also been established. S Voronikhin, 1953; and etc.). The high biological productivity of duckweeds in nature has been noted by many researchers. Their productivity in natural reservoirs mainly ranges from 0.7 - I kg, and according to some data, 2-7 kg of green

mass of the water surface (Raevskaya, 1966). In a culture with the use of various mineral salts, the yield of duckweed during the growing season is 70-80 tons of green mass per 1 ha (Sukhoverkhov, 1964). The daily yield of polyroot in the experiments of E. Landolt (1957) turned out to be 7.5 g/m3 in dry weight, which is more than 100 tons of raw biomass for 150 days of the growing season, calculated per 1 hectare. Some types of duckweed (Wolffia Sp. Sp.) under laboratory cultivation showed a fairly high yield.

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