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PROSPECTS FOR THE USE OF HYDROPHILIC PLANTS

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ANNOTATION

The article discusses the prospects of using hydrophilic plants. In recent years, microscopic algae have attracted the attention of researchers as a source of proteins, fats, carbohydrates, vitamins and physiologically active substances. Of particular interest are some green algae (chlorella, stagedesmus) and blue-green algae (spirulina, nostoc, anabena).

KEY WORDS: *hydrophile, perspective, aquatic and coastal plants, mineral, acid*

The shortage of clean drinking water and the protection of water bodies are currently one of the pressing problems throughout the world. This issue was commented on by the 155th UNESCO Assembly, held in Uzbekistan in 1998. The United Nations declared 2003 the International Year of Freshwater. The quality of fresh water is one of the important factors of public health. Providing the population with high-quality drinking water and necessary sanitation conditions became the most important issue at the beginning of the third millennium.

Information about the flora of hygrophytic plants is given in the training manual Yu.V. Richie ["Flora of the Hygrophytes" 7]. The manual describes in detail the functions of higher plants, life that is associated with water. In addition, the allowance reflects information on the biology of moist plants and their use in practice.

Studies of hydrophilic plants in Central Asia began in the 1960s. The monograph “Flora of aquatic plants in Central Asia” by A.M. Muzafarov [4] is also information on the spread and systematics of water flora found on large rivers and water basins of Central Asia. According to these data, 31 species are given, plants belonging to 29 genera growing in water pools and along their shores.

Aquatic and embankment plants include medicinal, vitamin, nutritional, nutritional and many other important plants. The demand for plant raw materials is growing every year. Here, the significance of aquatic and coastal plants is divided into two groups: the significance of aquatic and coastal plants in nature and the significance of these plants in the human economy. Although these issues are independent of each other, they are inextricably linked. The first question is of theoretical importance and requires in-depth scientific research. The second question is of practical importance, which, in turn, determines the versatility of research.

After the death of many aquatic plants, they decompose, leaving essential elements for mineral nutrition in the water. For example, after breaking down, the roots release a large amount of phosphorus, red - potassium, and redest - calcium elements. Wetland plants strengthen the ground part of water bodies and reduce the force of wave action. As a result, a favorable environment for the living of other organisms is formed in water bodies.

Wetland vegetation is important for the presence of zooplankton, zoobenthos and other aquatic animals. That is, this is a wintering place for various mollusks, crustaceans and aquatic insects; habitat for many fish species; favorable substrate for benthic organisms; the best food for waterfowl, herbivorous fish, muskrats, nutria and many other aquatic animals; serves as a nesting site for birds and a nest for fur-bearing animals.

Reed (Phragmites australis) is the best raw material for the paper and pulp industry. According to data, the reed stem contains 65% and 25% leaves [9]. Many building materials are made from reeds. From cane by dry grinding you can obtain up to 3% acetic acid, 1.6% acetone, 3.6% resin, 0.8% methyl alcohol. In addition, reed is used in the preparation of glue and various raw materials for light industry. The analysis shows that cane accumulates large amounts of sugar. It contains 6.4% soluble carbohydrates. Green mass contains 33.1-51.5 mg/kg of carotene.

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According to N.I. Voronikhin [1], reed is a good forage plant. It is used to make silage hay for livestock. 50.15% of ensiled reed is digested. Reed makes up 20-30% of the silage used for grazing livestock in the areas of the Amu Darya, Syrdarya and Ili rivers. Cane hay improves the quality of milk. Its young sprouts are not inferior in nutritional value to oats. According to the scientist, cane root is used in the preparation of coffee surrogates.

In terms of economic importance, reeds are not inferior to reeds and are a good source of food for muskrats, waterfowl and other aquatic animals. These are plants that store starch and sugar. Flour made from the rhizome is a good feed for pigs, cattle and poultry [3].

Many wetland plants are valuable food for herbivorous fish. These plants are considered the main food of white carp K.Z. Zolotova [10] studied quantitative indicators of the level of consumption of wetland plants by white carp. According to these scientists, fish eat the following aquatic plants well: Potamogeton pectinatus, P. filiformus, Lemna major, L. trisulca, Spirodela polyrhisa, Sagittaria sagittifolia, Typha latifolia, Glyceria aquatica, Gl. fluitans, Butomus umbellatus, Elodea canadensis, Chara fragilis, Cerotophyllum demersum, Rhizoclonium sp.

Butomus umbellatus can be used as food instead of potatoes. The leaves contain a lot of protein. It is also used for diseases of the digestive system, skin and genital organs. Orchis root is used in medicine; powder prepared from it, mixed with water, wine or milk, is used for gastrointestinal diseases and bladder diseases.

Duckweed (Lemna) is a good food for domestic animals, especially chickens and pigs. The plant contains up to 30% protein, up to 5% fat, 24-34% AEM, 3% phosphorus, 6% calcium, 2% magnesium, 20-25% calcium. Duckweed when wet is rich in vitamins.

According to A.K. Kirichenko et al. [2], as a result of environmental influences, plants in aquatic ecosystems also suffer significantly. In order to determine the strength of anthropogenic impact on the environment, it is possible to determine the physiological and biochemical characteristics of plants growing in water bodies, to identify and control the processes occurring in them.

Scientists have identified 17 types of fatty acids in *Elodea canadensis Michx, Myriophyllum spicatum L., Potamogeton crispus L.* from aquatic plants. According to the analysis, *Elodea canadensis L.* is richer in fatty acids than the other two species. It is believed that this species came from North America and is widespread in many bodies of water on Earth. It is believed that the main reason for this may be the large accumulation of fatty acids in its composition.

In recent years, microscopic algae have attracted the attention of researchers as a source of proteins, fats, carbohydrates, vitamins and physiologically active substances. Of particular interest are some green algae (chlorella, stagedesmus) and blue-green algae (spirulina, nostoc, anabena). These algae have the ability to change the amount of organic matter in their cells depending on growing conditions.

An exception to the microalgae family are the colorless protothecae devoid of chlorophyll. These achlorophilic algae turn to parasitism and thus cause the disease protothecosis in humans and animals [8].

By changing the composition of the nutrient medium and growing conditions, the amount of protein in microscopic algae can be increased from 8 to 60% or more, the amount of carbohydrates - from 6 to 50%, and the amount of fat - from 5 to 85%. Microscopic algae protein contains all the essential amino acids. 15 different vitamins have been found in this algae [5].

In cultivation, high yields are produced by chlorella and scendesmus. The yield of chlorella grown under controlled conditions can be 50-100 g per day per m2 or 1 ton of dry mass per hectare. In Japan, the production of algae (chlorella) has been established on an industrial scale (300,000 tons per year). A center has been created in the USA that produces 30 tons of dry algae biomass per year.

Algae biomass production is carried out in Mexico, India, France, Italy and other countries.
In conclusion, study the economic value of hydrophilic plants, their rational use and their bioindicator properties when assessing pollution of water bodies.

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