

The Value Of Amaranth Food Additives In The Food Industry

Dilshod Shodiev

Assistant of the Department of Food Technology, Fergana Polytechnic Institute, Fergana, Uzbekistan

E-mail: d.shodiyev@ferpi.uz

Mohidil Abduvalieva

Student of the Department of Food technology, Fergana polytechnic institute, Fergana, Uzbekistan

E-mail: mohidil7521@gmail.com

Abstract

This article analyzes data on the composition and natural medicinal properties of the medicinal plant amaranth in the scientific, popular science literature, the beneficial properties of all vegetative organs of the plant (seed, leaf, body, root), etc. In addition, amaranth seeds contain squalene, tocotrienols and omega-3,6,9, which can be used in medicine to treat many diseases.

Keywords: amaranth, oil, grain, biochemical composition, nutrient content, medicinal properties, squalene.

Introduction

In the action strategy for the further development of the Republic of Uzbekistan, "deepening structural changes and consistent development of agricultural production, further strengthening the country's food security, expanding the production of environmentally friendly products, significantly increasing the export potential of the agricultural sector" tasks are defined. In this regard, scientific research is becoming important, aimed, in particular, at creating technologies for the production of import-substituting products from medicinal plants grown locally [1-3].

The importance of this industry is evidenced by the decisions taken to accelerate the development of medicinal plant production in the republic and the creation of greenhouses, further increase the export potential of the industry, increase employment and income levels, create a mechanism for creating new jobs, especially in rural areas, as well as the integrated development of medicinal plant production based on innovative technologies [4-9].

577 of the 4230 species of plants in our country have been identified as medicinal plants. The fact that the amaranth plant, belonging to the class "gultojihoroz", is a unique medicinal plant has long been known in our country, in the correction of skin diseases during the reign of Abu Ali ibn Sina (for example, measles, red rash and x.k), there are records of extensive use of Amaranth in the treatment of wounds and wounds from the knee, foul odors in the oral cavity, and other diseases [10-15].

Methodologies

The original homeland of amaranth is South America, and it is known from history that it was used as a cultivated plant by the local population 8 thousand years ago.

Amaranth later spread around the world to North America, India and Asian countries, reaching China. Currently, it is widely popular as a cereal and vegetable plant among the mountain people of India, Pakistan, Nepal and China [14-19]. The cultivation of this plant, introduced in European countries, such as Russia and Ukraine, is widely used in medicine, cooking, cosmetology, industry, agriculture and other sectors of the national economy. It is also grown as an ornamental plant in some countries for its colorful flowers and leaves. It has 65 varieties and more than 900 species. To date, 19 varieties of amaranth have been introduced in local conditions, and the varieties "Uzbekistan-M", "Andijan", "Marhamat", "Ulug'nor" based on the varieties of amaranth Kharkovskiy-1, Helios, Ultra and Lera by the method of natural selection was created (Fig. 1) [20-26].



Figure 1. Amaranth plants

In the past, amaranth was grown mainly as an ornamental crop in our country. The red amaranth variety called "gultokhoroz" reminiscent of a rooster's crown is widespread in our country.

The healing properties of amaranth are widely promoted in foreign medicine. In Uzbekistan, the first study of certain characteristics of some types of amaranth began in the 90s of the last century by prof. Although it was conducted by KSSafarov, Prof. IRAskarov, Associate Professor NX Tokhtaboyev, its chemical composition, important aspects in pharmaceuticals and medicine have not been thoroughly studied [27-31].

Cultivation of amaranth in Uzbekistan, its wide use in various fields of national economy and medicine is a promising direction and one of the needs of today. From the ecological importance of this plant, there is a prospect of being involved in the health of our soil, which is losing its quality more and more, and even in solving the energy problem.

Amaranth oil in medicine in the biosynthesis of cholesterol; in cleaning the body from radionuclides, heavy metal salts; infectious diseases, herpes, psoriasis, vitiligo, neurodermatitis, eczema, atopic dermatitis, gastrointestinal ulcers, diabetes, liver disease, genitourinary colds, atherosclerosis, anemia, avitaminosis, angina pectoris, hypertension, oncological and cardiovascular diseases widely used in solving problems. It dramatically increases immunity, it is an unparalleled tool in the fight against anemia [32-36].

Amaranth seeds are a source of oil and squalene. Squalene, which is needed for the pharmaceutical industry, is imported from the liver of sharks and whales, and it is clear to science that these substances are present in large quantities (8%) in amaranth oil, and that this oil contains phytosterols and other substances that have medicinal properties necessary for human health. After that, attention to amaranth oil increased dramatically. Amaranth oil contains 77% of unsaturated fatty acids, 50% of which are linoleic and linolenic acids. Vitamin E in the form of tocopherols in oil has an antioxidant effect, has the property of reducing the amount of cholesterol in the blood. The oil also contains rutin and vitamin P, has antimicrobial and fungicidal properties [34-38].

It is not wrong to say that the presence of squalene in amaranth oil is one of the most important discoveries of our time. This substance, which is of special importance in medicine, was isolated for the first time in 1906 by the Japanese scientist Mitsumaro Sujimoto from the liver of a shark living at the bottom of the sea (lat. squalus - shark). It turns out that squalene is essential for sharks to survive in hypoxia (an environment with very little oxygen) deep enough in the sea. Since water is the most abundant in the body, squalene interacts with water, absorbs hydrogens from it and creates free oxygen, and provides oxygen saturation of tissues and organs. As a result, it rejuvenates the cells of the body, eliminates free radicals, prevents the appearance and

spread of oncological tumors, dramatically increases the stability of the immune system, and plays an important role in restoring human health.

Among the many properties of squalene, it should be mentioned that it is a derivative of vitamin A, and in the synthesis of cholesterol it turns into its biochemical analogue 7-dehydrocholesterol, and this substance exhibits radioprotective properties under the influence of sunlight and forms vitamin D. In addition, vitamin A is better absorbed when dissolved in squalene. Since squalene is a natural component of the human body's sebaceous glands, it has the ability to be easily absorbed by the body and accelerates the entry of useful substances contained in cosmetics into the body. For humans, squalene is necessary as an anticarcinogenic, antimicrobial fungicide, and it is oxygen deficiency causes tissue damage, aging of the body, and the appearance and development of tumors. It is squalene that is necessary as a solution to this problem.

It is known that flour and leaves made from amaranth grain are of good quality and have useful nutritional value, amaranth oil is rich in iron, phosphorus, potassium, B1, B2, E and D vitamins, phospholipids, and phytosterols.

According to its biochemical composition, amaranth is a valuable plant for obtaining high-quality fodder. Depending on the growth phase, in amaranth blue mass (calculated in relation to absolute dry mass): crude protein 15.6-16.75%, fats 2.4-2.8%, coarse fibers 16, 0-21.7%, calcium 2.1-2.6%, phosphorus 0.2-0.21%, carotene up to 200 mg/kg. For comparison: in the milking-hardening phase of corn, the blue mass of the grain contains 2 times less protein than amaranth, i.e. 7.5-8%.

In addition, amaranth is a useful feed for pets and poultry. If 25% of amaranth blue mass is added to their feed, lambs and calves grow 1.5-2 times faster, nutria and rabbits 2-3 times faster, the milk yield and fat content of cows increases dramatically. Piglets fed with amaranth have been tested in practice to gain 60 kg of live weight in 4 months. Green amaranth in animal husbandry mass and pulp is a protein-vitamin feed of high energy quality, and it is a necessary feed especially for breeding cattle. In poultry farming, it is a nutritious, cervical feed, which has been found to have a significant effect on increasing the number of eggs. In addition, it is an invaluable raw material for cosmetology.

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