

## THE IMPORTANCE OF OAT-BASED MILK ALTERNATIVES AND FUNCTIONAL BEVERAGES

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Oat-based milk alternatives or functional beverages, like all plant-based milk alternatives, are liquids that result from the breakdown of plant matter through aqueous extraction. It can be homogenized by technological processing in the next stages, and the particle size can be in the range of 5-20  $\mu\text{m}$ . This ensures that it is identical in appearance and consistency to cow's milk. In addition, by adding the necessary ingredients, oat milk can be turned into a functional drink.

Oats are of interest due to their high fiber content, phytochemicals, and high nutritional value, and oat milk has recently appeared on the market with its potential therapeutic benefits. Oats have various health benefits such as hypocholesterolemic and anti-cancer properties. The health benefits of oat are related to dietary fibers such as beta-glucan, functional protein, lipid and starch components and phytochemicals present in oat grain, and therefore it is one of the promising raw materials for the preparation of functional plant milk [1]. Oats are a source of quality protein with amino acid balance. The interest in oats arises mainly due to the presence of a functionally active component -  $\beta$ -glucan, which has a neutral character.  $\beta$ -glucan, which is a soluble fiber, has the ability to increase the viscosity of the solution and can delay the gastric emptying time, increase the transit time through the gastrointestinal tract, which is related to their decrease in blood glucose levels [2].

Oat-based milk or functional drinks have several health benefits. Rich in B group vitamins. Most commercial varieties are usually fortified with vitamins B2 and B12. You'll find 25 to 100% of the daily value of vitamins B2 and B12 in one glass of oat milk. Both of these B vitamins help produce energy from the foods we eat. However, vitamin B12 is an essential nutrient for red blood cells as well as brain and nerve cells. B vitamins help minimize skin damage and promote cell regeneration. In addition, B vitamins may play a role in hair color – studies have shown that a lack of B12 can lead to premature graying and hair loss [3].

$\beta$ -glucan in oat milk is good for cholesterol. Cholesterol can be reduced by consuming oat milk. It depends on how  $\beta$ -glucan binds to the intestine and affects the absorption of cholesterol in the individual organism. The  $\beta$ -glucan in oat milk provides one-third of the recommended daily amount. A glass of oat milk can contain about 25% of the recommended daily intake of calcium and about 20% of the recommended amount of vitamin D,



depending on the functional fortification. One glass of oat milk contains 300 to 400 mg of calcium, which is important for strong bone formation and good health. It also contains potassium and magnesium, which are good for bones. Calcium and these two minerals help keep our bones strong and healthy. Magnesium helps absorb calcium, and potassium reduces bone breakdown and plays an important role in preventing calcium from being washed away. According to research, consuming 3 g of oat  $\beta$ -glucans daily reduces total cholesterol levels by 5 to 7%. Since the  $\beta$ -glucan content of oat milk lowers cholesterol levels, it also reduces the risk of developing heart disease. Early research published in the American Society for Clinical Nutrition linked cholesterol-lowering benefits to  $\beta$ -glucan when consumed as a beverage [4],[5].

All the saturated fat found in cow's milk is replaced by unsaturated fat in oat milk. Saturated fat is the type of fat we should eat less of because it is associated with increased cholesterol levels. Saturated fats are solid at room temperature and are mostly found in animal products and hardly found in oat-based beverages [6].

Oat-based drinks are also an alternative to lactose, milk and gluten. Oat milk is suitable for most diets - it is vegan and lactose, soy and nut free as it is made from oats and water. Oat milk is an antioxidant that can support the skin's defense against daily wear and tear, UV rays, pollution, and other free radical damage. In turn, this helps maintain healthy-looking skin by reducing the appearance of pigmentation, fine lines, and wrinkles. It is also a humectant, meaning it helps the skin retain water, which is why you see it as a common ingredient in moisturizers [7], [8].

Taking into account the useful features mentioned above, oat plant can be a new and useful food product. It can be said that the sources of raw materials are sufficient for the production of this product as an alternative to cow's milk or as a functional drink. Because in Uzbekistan, varieties of autumn oats "Dostlik 85" (1993), Yutuq (1981), broad-leaved spring oats Uzbekistan (1981) were released and zoned for the climatic conditions of all regions.

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