

## 14. The use of sea buckthorn meal in the food industry

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**Introduction.** Worldwide, 1/3 of all food produced for human consumption is lost or wasted. Proper recycling of food waste can reduce losses and contribute to efficient waste-free production. Sea buckthorn meal, which is considered to be food waste, is a raw material that can be exploited as a source of high-value components.

**Materials and methods.** The issue of the value of sea buckthorn meal was of great interest of scientists of the 21st century. The analysis of the use of sea buckthorn meal in the food industry of Ukraine was carried out. The emphasis was made on the use of sea buckthorn meal in the bakery manufacturing.

**Results.** Sea buckthorn meal is the dry residue in the production of sea buckthorn oil. It remains after juice and pulp are squeezed from the berries. It is a source of proteins, minerals, beneficial amino acids, which have a positive influence on the human body.

The study has shown that sea buckthorn meal affects both physical and chemical properties of bakery products, changing the color of the final product to a more golden one and giving the product a delicate taste of sea buckthorn. The use of sea buckthorn meal significantly enriches flour confectionery and bakery products with dietary fiber 2.5–6 times, minerals and vitamins: calcium content increases 1.3 times; magnesium – 1.9; phosphorus – 1.2; iron – 2.3–2.5; Vitamin B1 – 1.3–2; PP – 2.6 times.

An increase in the amount of sea buckthorn meal to 20% by weight of flour helps to reduce the density of the biscuit dough by 12%, and the viscosity of the dough by 3%, which makes it possible to obtain biscuit dough and baked semi-finished products with better rheological indicators. Moreover sea buckthorn meal makes the dough more plastic, reduces the fragility of the finished product.

Use of sea buckthorn meal speeds up the fermentation process of the dough, which reduces the cost of downtime. In addition, the cells of sea buckthorn meal contain polyphenols – powerful natural antioxidants that protect cells of the human body from harmful reactions. Components of sea buckthorn meal such as cellulose and pectin can substitute the use of artificial flavors and cocoa powder in the bakery production. On the other hand, the use of sea buckthorn flour in bakery makes it possible to reduce the calorie and sugar content, which is necessary for numerous patients with type 1 or 2 diabetes, various forms of cardiovascular and gastrointestinal diseases, obesity, etc.

The bakery products have long been basic food products for human nutrition. However, shelf life of bakery products is very limited. The use of sea buckthorn meal as a supplement to flour will increase the shelf life of the product, thereby reduce the expenses of the population, as well as improve its health indicators.

**Conclusions.** Proper recycling of food waste allows both to reduce its amount and to improve public health. The use of sea buckthorn meal is a step towards increasing the shelf life of bakery products, which are products of mass consumption.

### References

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