

ANALYSIS OF FOOD ADDITIVES USED IN FOAMING**Panchenko U.V.***National Technical University**"Kharkiv Polytechnic Institute", Kharkiv*

Foaming is a modern culinary technique for creating light, airy foams that add unique textures and flavors to dishes. This process relies on food additives known as foam stabilizers, which play a critical role in maintaining foam quality under challenging conditions, such as high temperatures or low liquid viscosity. Additionally, these stabilizers enhance the sensory appeal and shelf life of the final product, making them indispensable in gastronomy [1].

Stabilizers differ in their properties and effectiveness depending on the application. The selection of an appropriate stabilizer involves considering factors such as cost, effective concentration, foam stability duration, and heat resistance [2]. Table provides a comparative analysis of popular stabilizers used in foaming.

Table – Properties of Food Stabilizers for Foam Production

Stabilizer	Cost, UAH/kg	Effective Concentration, %	Foam Stability, min	Heat Resistance, °C
Agar-Agar	600-800	0.2-1	180-240	100
Gelatin	100-200	1-2	60-120	40-50
Soy Lecithin	150-300	0.3-1	30-60	60
Xanthan Gum	1000-1500	0.05-0.3	120	90
Sodium Alginate	800-1200	0.5-2	120-180	100

Among these options, soy lecithin is the most practical choice due to its affordability, functionality, and broad compatibility with different liquids. It is especially valued in gastronomic applications requiring delicate and flavorful foams. Sodium alginate, on the other hand, is highly effective due to its heat resistance and long foam stability. However, its higher cost limits its use in cost-sensitive applications.

Recent studies suggest that combining stabilizers, such as soy lecithin and xanthan gum, can significantly improve foam structure and durability. This synergy allows for the creation of stable foams under varying conditions, expanding the possibilities for innovative culinary techniques. Such blends can also reduce the overall cost by optimizing the concentration of individual additives. Developing multi-component stabilization systems could revolutionize foam production by ensuring consistent quality and expanding their application in both gastronomy and food production.

References:

1. Farrimond S. *The Science of Cooking* / S. Farrimond. – Dorling Kindersley, 2017. – 256.
2. *Molecular Cuisine: Techniques, Tools, Ingredients* [Electronic resource]. – Available at: <https://a-g.ua/ua/blog-ua/molekuljarna-kuhnja-tehnika-instrumenti-ingredijenti/>