Brief information about the project

Title	AP23490282 "Improving the quality of solid fat products"
Relevance	The fundamental distinction of our proposed method lies in the fact that it does not involve the use of the transesterification process with an expensive enzymatic catalyst. The use of a platinum catalyst enables the production of salomas with the desired hardness, low content of trans isomers, and saturated fatty acids. It remains to incorporate liquid vegetable oils to obtain a product with a balanced fatty acid composition, as well as additional ingredients that enhance its physiological value and oxidative stability. Our proposed project is a continuation of our previous scientific research aimed at improving the quality of solid fat-and-oil products with a balanced fatty acid composition.
Goal	The aim of the project is to develop complementary methods for processing vegetable oils to produce high-quality solid fat-and-oil products. Margarines and spreads obtained through the proposed method will be free from such disadvantages as high levels of trans isomers and saturated fatty acids (SFAs) and will possess a balanced fatty acid composition (FAC). These will be healthy food products that contribute to improving the health of the country's population.
Tasks	-Hydrogenated products will be obtained and characterized using a Pt catalyst in a large-scale reactor; a batch of blended products will be produced and tested in medical institutions and food enterprises. The results of the development of a technology for producing margarines with a balanced fatty acid composition (FAC), as well as chromatographic analysis data and oxidative stability, will be obtained. -A pilot batch of modified margarine will be produced; the results of the testing of modified margarines and blended oils will be collected; patent applications will be submitted. -A standard (Technical Specifications, TU) for margarines with a balanced FAC will be developed; results of quality assessment of blends and solid fat-and-oil products in an independent testing laboratory will be obtained; results of monitoring domestic and imported fat-and-oil products will be collected.
Expected and Achieved Results	Production of a pilot batch of modified margarine. Monitoring of the oxidative stability of modified margarines over time. Product release and testing in medical institutions and food enterprises. Results of testing of modified margarines and blended oils. Preparation and submission of a patent application for the method of producing margarines with a balanced fatty acid composition (FAC). Performance indicator: Patent applications for the invention will be submitted. Development and approval of the Technical Specifications (TU) standard for margarines with a balanced FAC. Performance indicator: TU standard for margarines with a balanced FAC will be obtained. Obtaining an independent quality assessment of the blends and solid fat-and-oil products. Performance indicator: Results of quality assessment of blends and solid fat-and-oil products from an independent testing laboratory will be obtained. Monitoring the quality of fat-and-

	oil products on the retail market in Kazakhstan.
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Publications list with links to them	1. Toshtay K., Auyezov A., Azat S., Busquets R. Trans fatty acids and saturated fatty acids in margarines and spreads in Kazakhstan: Study period 2015–2021. Food Chemistry: X, 2025. 102246. https://doi.org/10.1016/j.fochx.2025.102246 2. Toshtay K., Toktassynov S., Kanat A., Kunarbekova M., Mussa N. S., Azat S. Health and Sustainability Implications of Palm Oil Substitution with Platinum-Catalyzed Hydrogenated Fats in the Food Industry. ES Food & Agroforestry, 2025, 19, 1381. http://dx.doi.org/10.30919/esfaf1381
Patent information	