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Effect of Ultrasound Treatment on Physical and Chemical Characteristics of Hypoallergenic Besgluten Test

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Modern population studies have shown that the gene responsible for susceptibility to celiac disease is quite common and the disease itself is present in about 0.5–1% of the world population [1]. Celiac disease is an autoimmune disease caused by damage to the villi of the small intestine in the gastrointestinal tract [2]. The causative agents are some food products that contain certain proteins, such as gluten and similar proteins contained in wheat, rye and barley [3].

The use of rice flour, starch and gum in the preparation of food helps to produce the products for ill people. However the created recipes for diet gluten-free dough cannot be used in industry, as they do not allow obtaining dough with the necessary characteristics for machine fabrication.

In this regard, the purpose of this work is to develop a method for producing dough with the necessary characteristics, as well as to study the effect of ultrasonic treatment on the physical and chemical characteristics of the hypoallergenic gluten-free dough.

Ultrasonic treatment of the dough components at a frequency of 22 kHz during the whole time of its preparation and kneading leads to fabrication of a more viscous and malleable product, which can be easily used when molding dumplings with a production apparatus. In addition, there is about 2–3 times increase of as prepared dough volume. It may obtain more product without increasing the initial amount of components that can also have a beneficial effect on the economic effect.

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Biography:

Olga Orlova is the head of the Committee on Innovation and Technology Implementation, a member of international research centre “Biotechnologies of the Third Millennium”, Associate Professor of the Applied Biotechnology Department at ITMO University, Russia. She is also an expert of Skolkovo Foundation, FoodNet adviser in Saint-Petersburg, Leader of St. Petersburg “Nutrition for the Future” Project. Olga Orlova had her tertiary degree in 1989 and she had her PhD degree in 2009 from St. Petersburg State University of Refrigeration and Food Engineering. Working experience: head technologist of a dairy factory, supervisor of the bakery and confectionery production line. The range of research interests includes: food biotechnology, functional foods, extending shelf-life, adjustment of trace element content of foods in Russia.