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# IMPROVEMENT OF THE TECHNOLOGY OF MILK MOUSSES WITH THE USE OF PLANT BIOACTIVE COMPONENTS FOR THE KETO DIET

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## **Abstract**

The thesis article modern scientific approaches to adapting the technology of whipped milk desserts of the mousse type for the keto diet using lactose-free dairy bases and plant-based drinks (coconut, almond), as well as plant bioactive substances (inulin, plant-based powders containing pectin). The literature review covers low-carbohydrate mousse formulations and the prebiotic properties of inulin. The prospects of integrating functional additives to increase the nutritional value and technological stability of the product have been established. The results are suitable for the HoReCa sector and for special nutrition.

*Keywords:* milk mousses, keto diet, inulin, prebiotics, lactose-free desserts, functional additives, plant-based drinks.

## **Introduction**

In modern nutrition, products of functional purpose that combine pleasant organoleptic properties with preventive potential are becoming increasingly important. One of the promising directions is the creation of whipped desserts of the mousse type adapted to the needs of special dietary patterns, in particular the keto diet. The keto diet is characterized by a sharp restriction of carbohydrates, an increased content of fats and a moderate amount of protein, which determines the need for new approaches to the development of dessert products. In this context, special interest is focused on mousses based on lactose-free dairy products or plant-based drinks, enriched with inulin, pectin-containing and fruit-and-vegetable powders, which can simultaneously improve texture, increase nutritional value and comply with the principles of the keto diet [2, 4-6].

## **Relevance of the topic**

Traditional milk mousses contain a significant amount of sugar and are often produced with components that are unsuitable for low-carbohydrate diets. At the same time, the demand for sugar-free, lactose-free and low-carbohydrate desserts is steadily growing, which is confirmed by numerous practical recipes for keto mousses based on cream, avocado, coconut plant-based drinks and cocoa. Such products demonstrate a stable whipped structure, pleasant taste and good sensory attractiveness; however, in most cases they are oriented only toward culinary practice rather than scientifically grounded optimization of formulations [5-6, 9]. Therefore, it is appropriate to review existing studies on functional ingredients, in particular inulin, which is considered a prebiotic dietary fiber of plant origin with a potentially positive effect on the gut microbiome and metabolic health.

### **Aim and objectives**

The aim is to summarize modern scientific approaches to the development of milk mousses suitable for the keto diet and to determine the prospects for using plant bioactive components as a tool for technological and nutritional optimization of whipped desserts.

### **Object and subject of the study**

The object of the study is the technology of whipped desserts of the mousse type. The subject of the study is scientific and applied approaches to the use of lactose-free dairy products, plant-based drinks, as well as inulin, fibrous and pectin-containing additives in mousse formulations oriented toward the keto diet.

### **Literature review and results**

Modern keto mousses are mainly based on a combination of a high-fat dairy base with cocoa, erythritol or non-caloric sweeteners. Such formulations confirm the technological feasibility of obtaining a stable, airy and creamy structure without the use of sugar. [4, 6, 9] For the keto diet, this is crucial, since a dessert must not only have a low-carbohydrate profile but also maintain attractive sensory characteristics.

In works devoted to inulin, its role as a soluble prebiotic dietary fiber capable of selectively supporting the growth of beneficial microflora and promoting the formation of short-chain fatty acids is emphasized [1, 3]. For mousse technology, this is of interest due to its effect on consistency and structural stability. Inulin does not disrupt ketosis, as it is only partially fermented with minimal impact on blood glucose, which makes it promising for low-carbohydrate and keto-oriented products [7-8].

Plant-based drinks (for example, coconut or almond drinks) ensure high energy density and satiety, which makes them ideal for keto desserts by providing sufficient fat content with a reduced proportion of digestible carbohydrates. Plant-based powders containing pectin regulate viscosity and provide natural antioxidants, further enhancing the product's nutritional value and potential health benefits. The combined use of inulin and other plant-based structural components aligns with the concept of functional desserts for special diets [1, 3, 7-9].

### **Conclusions**

The conducted review indicates that mousses are a promising group of desserts for the keto diet due to the possibility of replacing sugar and using high-fat dairy bases and plant-based drinks. Inulin and plant powders increase functionality and nutritional

value without violating keto dietary principles. These findings can be used to develop and introduce new mousse-type products in the HoReCa sector, as well as in technologies for special and health-oriented foods.

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