FOOD REFORMULATION IN PRACTICE: DEVELOPMENT OF A FUNCTIONAL YOGHURT ICE CREAM

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Modern diets are increasingly dominated by ultraprocessed, energy-dense, nutrient-poor foods, which provide sensory satisfaction but lack dietary fiber, bioactive compounds, and microorganisms essential for gut microbiome health. The gut microbiome—a personalized ecosystem of billions of microbes—plays a key role in digestion, metabolism, immune function, and mental well-being, highlighting the importance of functional foods that support microbial diversity. Food reformulation is a key strategy for improving public health by reducing added sugars and saturated fat while increasing fiber and functional components. In the dairy dessert category, few products combine health-oriented composition with strong consumer appeal.

This study aimed to apply food reformulation principles to develop a functional ice cream under the TalTech brand that combines improved nutritional quality with strong consumer acceptance.

A rhubarb–red currant yoghurt ice cream in a waffle cone was developed in collaboration with an industrial partner. The formulation included dietary fiber and TENSIA® lactic acid bacteria. The development process involved competitive and nutritional benchmarking, prototype optimization, sensory evaluation, and large-scale consumer acceptance testing with several hundred participants.

The final product demonstrated reduced sugar content, moderate fat, higher protein, added dietary fiber, and maintained viable probiotics. Consumer responses were generally positive, indicating that reformulated ice cream can preserve sensory appeal while delivering nutritional benefits.

The project demonstrates that interdisciplinary food reformulation can create functional dairy desserts that support gut health, offer a healthier alternative to ultraprocessed products, and maintain market relevance, supporting the broader application of functional foods and food reformulation strategies in commercial dairy desserts.