

Effect of Homemade Kefir on the Nutritional and Functional Properties of Tarhana and Global Market Potential

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Abstract:

Tarhana is a traditional fermented cereal–dairy product known for its high nutritional value and functional potential. This study aimed to evaluate the effects of incorporating homemade kefir into tarhana formulation on its physicochemical properties, bioactive composition, antioxidant capacity, and functional profile, while simultaneously assessing its alignment with current global market trends. Tarhana samples were produced using yogurt or kefir as fermentation sources. After fermentation, pH, titratable acidity, microbial counts, total phenolic and flavonoid contents, DPPH and ABTS radical scavenging activities, phytochemical composition (LC-MS/MS), and total and free amino acid profiles were analyzed. Kefir incorporation significantly increased total phenolic and flavonoid contents and enhanced antioxidant activity compared to yogurt-based tarhana. It promoted the growth of lactic acid bacteria while reducing yeast and mold counts, indicating improved microbiological stability. LC-MS/MS results showed increased diversity and concentration of bioactive compounds in kefir-enriched samples. Fermentation modified total and free amino acid profiles, likely due to microbial metabolism. Moreover, kefir-enriched tarhana exhibited higher α -amylase inhibitory activity, suggesting improved glycemic control potential. Overall, kefir incorporation enhanced both the nutritional and functional properties of tarhana, supporting its development as a value-added functional product with promising global market potential.

Keywords:

Functional food, Kefir, Fermented foods, Kefir, Tarhana, Global market.