

Molecular Approach for the Detection of Lactic Acid Bacteria in the Kenyan Spontaneously Fermented Milk, Mursik

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Abstract : Many spontaneously fermented milk products are produced in Kenya, where they are integral to the human diet and play a central role in enhancing food security and income generation via small-scale enterprises. Fermentation enhances product properties such as taste, aroma, shelf-life, safety, texture, and nutritional value. Some of these products have demonstrated therapeutic and probiotic effects although recent reports have linked some to death, biotoxin infections, and esophageal cancer. These products are mostly processed from poor quality raw materials under unhygienic conditions resulting to inconsistent product quality and limited shelf-lives. Though very popular, research on their processing technologies is low, and none of the products has been produced under controlled conditions using starter cultures. To modernize the processing technologies for these products, our study aims at describing the microbiology and biochemistry of a representative Kenyan spontaneously fermented milk product, Mursik using modern biotechnology (DNA sequencing) and their chemical composition. Moreover, co-creation processes reflecting stakeholders' experiences on traditional fermented milk production technologies and utilization, ideals and senses of value, which will allow the generation of products based on common ground for rapid progress will be discussed. Knowledge of the value of clean starting raw material will be emphasized, the need for the definition of fermentation parameters highlighted, and standard equipment employment to attain controlled fermentation discussed. This presentation will review the available information regarding traditional fermented milk (Mursik) and highlight our current research work on the application of molecular approaches (metagenomics) for the valorization of Mursik production process through starter culture/ probiotic strains isolation and identification, and quality and safety aspects of the product. The importance of the research and future research areas on the same subject will also be highlighted.

Keywords : lactic acid bacteria, high throughput biotechnology, spontaneous fermentation, Mursik

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