



Applicant Information

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Abstract Details

Title:

Effect of spices on the microbial diversity, physicochemical properties, and nutritional properties of fermented millet (*Pennisetum glaucum*) slurry

Category:

Health promotion with nutrition and hygiene

Authors:

Osei-Bimpong, Blessed; Agyirifo, Daniel Sakyi; Mensah, Theophilus Abonhy; Tepson, Jackline Ayeba; Adotey, John P K

Objectives:

The study aimed to evaluate the effect of spices on the bacteria diversity, nutritional composition and physicochemical properties of spontaneously fermented *Pennisetum glaucum* (pearl millet) slurry.

Method:

Pearl millet was obtained and subjected to fermentation both with and without the inclusion of spices over a period of 72 hours. The fermented slurry was subsequently analysed for its acidity levels, microbial population, proximate and mineral content, lactic acid production, and bacterial diversity. These evaluations were conducted utilizing the Kjeldahl method, the Soxhlet extraction technique, and molecular assays.

Results:

The fermented system was acidic as the fermentation period increased from 0 hours to 72 hours. The presence of spices increased mineral and proximate composition and lactic acid produced than the fermented slurry without spices. The bacteria diversity showed there was more bacteria variety at 48 hours than at 24 hours and 72 hours. The fermentation of the slurry with the spices indicated that bacteria in the Phylum Proteobacteria were the most abundant. Furthermore, as the fermentation period increased with an increase in acidity as pH reduced, lactic acid bacteria in the genera *Lactocaseibacillus* reduced.

Conclusion:

The study has shown that the addition of spices to pearl millet slurry during fermentation, enhances its nutritional content and the presence of some lactic acid bacteria that have been classified as probiotic strains will improve the gut microbiota when the fermented product is consumed.

Submission Date:

2024-09-10 10:42:23