

**Isolation of potential Probiotic bacteria from Local Fermented food in Africa***Chimezie Collins Izuchukwu**Graduate (master)*

Санкт-Петербургский национальный исследовательский университет информационных технологий, механики и оптики, Санкт-Петербург, Россия

*E-mail: chimeziecollins93@gmail.com*

Fermentation of food in Africa has been ongoing far back as time and these fermented foods have contributed to the nutrition and overall quality of life of its people[1]. Therapeutic biomolecules derived as metabolites of bacteria involved in these fermentation process includes Lacticin BH5 from *Lactococcus lactis* BH5 isolated from Kimchi, a fermented food from Korea, nisin Z from *L. lactis* isolated from dahi, an Indian curd that inhibits *Listeria monocytogenes* and *Staphylococcus aureus*, and gamma-polyglutamic acid from *Bacillus subtilis* isolated from Asian fermented soybean foods. [4,5]. In this work, we want to investigate gari, a local West African fermented food from Cassava root used locally to treat diarrhea, which has been shown to possess diverse species of probiotic bacteria that produce bacteriocins which are effective against enteropathogens such as *Salmonella typhimurium*, *Listeria monocytogenes*, *Clostridium* spp. [2].

This study aims to isolate potential probiotic bacterial strains from gari and to find bacteriocins from these bacteria isolated.

For Isolation, bacteria were grown aerobically at 30 °C on an MRS medium at a pH of 6.5±0.2. A total of 5 bacterial strains isolated from gari were analysed using Sanger sequence of 16s rRNA region and phenotypic methods (Gram staining, morphology). Based on analysis of sequences with NCBI, we established that strains belong to the *Bacillus* genus.

It is known that *Bacillus* sp. possess probiotic properties and has the potential to be used in biomedicine, for example, Thuricin and Thuricin H produced by *B. thuringiensis* inhibits the growth of methicillin-resistant *S. aureus*, Entomocin 110 and Entomocin 9 produced by the same species inhibits *Pseudomonas aeruginosa* [3].

In further studies, we are going to perform whole-genome sequencing (WGS) of isolates to identify novel bacteriocins and test the bactericidal activity of isolates.

**References**

- 1) Franz, C. M. A. P. et al. (2014) 'African fermented foods and probiotics', International Journal of Food Microbiology. Elsevier B.V., 190(2014), pp. 84–96. doi: 10.1016/j.ijfoodmicro.2014.08.033. Mokoena, M. P., Mutanda, T. and Olaniran, A. O. (2016) 'foods and beverages, 6628. doi: 10.3402/fnr.v60.29630. Salazar-marroqui, E. L. et al. (2016) 'Bacteriocins synthesized by *Bacillus thuringiensis* [U+202F]: generalities and potential applications', Reviews in Medical Microbiology, 27(3), pp. 95–101. doi: 10.1097/MRM.000000000000076. Tamang, J. P. et al. (2016) 'Functional Properties of Microorganisms in Fermented Foods', Frontiers in Microbiology, 7(578), pp. 1–13. doi: 10.3389/fmicb.2016.00578. Tamang, J. P., Watanabe, K. and Holzapfel, W. H. (2016) 'Review [U+202F]: Diversity of Microorganisms in Global Fermented Foods and Beverages', Frontiers in Microbiology, 7(377), pp. 1–28. doi: 10.3389/fmicb.2016.00377.