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Proximal and Organoleptic Analysis of Developed Product from Fermented Pearl Millet for Treatment of Gut Dysbiosis in Obesity

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ABSTRACT

Introduction: Obesity is one of the leading medical conditions for various Non-Communicable Diseases (NCDs), such as stroke, diabetes, high blood pressure and Cardiovascular Disease (CVD). An imbalance in the gut microbiome can influence energy extraction from food, inflammation, fat storage, and appetite regulation, all of which can contribute to obesity.

Aim: The present study aimed to develop a value-added fermented beverage (drink) product from pearl millet to enhance the gut microbiome of obese individuals in the age group 18-25 years.

Materials and Methods: Pearl millet Ambali drink was developed by fermenting the millet for 12- 14 hours in different concentrations such as T1 (85 g) and T2 (100 g). Sensory evaluation was done by 9-point Hedonic scale. Data was statistically analysed by using SPSS version 24.

Result: The results revealed that Ambali drink with 85% of fermented pearl millet was highly acceptable in all parameters - Color (60%), Appearance (23.3%), Taste (36.7%), Consistency (33.3%), Overall acceptance (60%) and the differences were statistically significant for taste, appearance and overall acceptability ($p<0.01$). The proximal analysis of the highly acceptable products were energy (362 kcal), Protein (14.77 g), carbohydrates (60.41 g), Fat (6.37 g), fibre (9.76 g), and Vitamin B12 (0.36 mcg).

Conclusion: The study concluded that the Ambali drink incorporation with 85 g fermented millet was highly acceptable. The present study can be beneficial in enhancing the gut microbiota of individuals who are obese and reduce the risk of diseases like stroke, diabetes, and high blood pressure.

Keywords: Gut microbiota, Fermented millet, Waist circumference

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