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Fermentation of *Psidium guajava* Juice by Using Probiotic Lactic Acid Bacteria *Lactobacillus plantarum*

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The goal of this study is to produce functional drink from a non-diary source thinking of Lactose intolerants and milk haters. The thought behind using *Psidium guajava* as fermenting agent is its low market cost which will make finish product low cost in market too.

Lactobacillus plantarum which is a gram +ve, aerotolarent bacteria that generally produces D, L-isomers of lactic acid and the most diversified member of the genus *Lactobacillus*, found in many fermented products, plant matter & saliva. It is a very flexible & versatile species. *L.plantarum* quickly dominates the microbial population & starts producing Lactic Acid & Acetic Acid by the EM pathway just within 48 hours. It has a significant anti-oxidant activity & maintains the permeability in the intestine. The antimicrobial substances produced by *L.plantarum* help them to survive in humans.

The main objective of this study was to produce fermented probiotic drink with the help of *Lactobacillus plantarum*. The fermentation was carried at 37°C for 72 hrs under microaerophilic condition. The parameters like pH, microbial load, antioxidant activity (DPPH), acidity & concentration of reducing sugar had been measured. The antibacterial against *E.coli, Staphylococcus, Salmonella, Klebsiella* was determined. Fermented juice was subjected Cytotoxic activity against Gastrointestinal cancer cell line & it is having some activity. The presence of various types of organic acids has determined by the virtue of HPLC analysis.

The result says functional drink possesses metal scavenging activity. So, the antioxidant properties are present in the drink. Moreover, the product contains the organic acids, such as acetic acid, lactic acid and ascorbic acid which are essential for the human body. Our product has an antimicrobial potentiality against E. coli and Pseudomonas aeruginosa. The cytotoxicity of the product against Prostate cancer cell line is a bit satisfactory, it destroyed 25% of tumor cells.

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