EMPOWERING WOMEN HEALTH: READY-TO-EAT PROBIOTIC NUTRACEUTICAL PRODUCT WITH ENHANCED BIOAVAILABILITY OF CALCIUM

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Introduction:

According to the National Family Health Survey-4, 25% of the women population in their reproductive age are undernourished. Improving the quality and nutrient level of food consumed in the household is among the vital steps to combat the undernutrition status of women in their reproductive age (UNICEF 2019).

Gut microbiota (GM) has gained recognition as an important determinant of Calcium metabolism to improve the bioavailability of Calcium (Patel et al., 2018).

The present project envisions the development of a novel ready to drink formulation incorporating appropriate indigenous probiotic strain into the banana stem sap. The core sap of banana pseudostem is well known remedy for urinary disorders, helps in the treatment for removal of stones in the kidney, gall bladder and prostate, nervous disorders like epilepsy and hysteria (Carine et al., 2006).

Objectives:

1. *In vitro* assessment of indigenous probiotic strain for enhanced bioavailability of Calcium using human cell line model (HT-29).
2. Developing nutraceutical product by incorporating indigenous probiotic strain.
3. Microbiological, Nutritional and Sensory analysis of the developed nutraceutical product.

Methodology:

1. Screening for Probiotic Potential
   - Hydrophobicity Assay
   - Coaggregation Assay
   - Auto aggregation Assay
   - Antibiotic Susceptibility Test
   - Antimicrobial Potential
   - Evaluation of survivability of probiotic strain using in vitro gastric system
2. Morphological & Biochemical Characterization
3. Product Development
4. Microbiological, Nutritional and Sensory Evaluation

Results and Conclusion:

1. Novel probiotic nutraceutical product with enhanced bioavailability of Calcium.
2. Contributing to the knowledge base of indigenous probiotics and their efficacy in the management of Calcium deficiency.
3. Design and validation of a novel probiotic formulation specifically targeted to enhance bioavailability of Calcium in young women (18-30 yrs).

Innovation in the project:

A novel probiotic nutraceutical product with enhanced bioavailability of calcium was developed.

Scope for future work:

The developed ready to drinkprobiotic nutraceutical product will be helpful to overcome the deficiency of calcium. The indigenous probiotic strain incorporated in the nutraceutical product helps in Calcium metabolism to improve the bioavailability of Calcium.

Banana Stem Sap used to develop nutraceutical product has anti urolithiatic properties which helps to get rid of kidney stones. This also makes the product dairy free probiotic which is beneficial for lactose intolerant people.

Altogether a vegan, dairy free probiotic nutraceutical product is developed that can easily increase the bioavailability of calcium, increase gut health and also helps to cure kidney related disorders.