

Probiotic functional drink to control *Type 2 Diabetes Mellitus* - A Review

M. A. E. G. Perera*, J. P. D. Lakmali, L. J. M. K. T. Wanninayaka, N. U. Kulathunga, P. C. U. Wanninayake, W. M. S. C. Jayarathne and P. N. Yapa

Faculty of Applied Sciences, Rajarata University of Sri Lanka
geethanjana91@yahoo.com

Type 2 diabetes mellitus (T2D) is a major non- infectious disease in the world and a global concern. Diabetes is a condition of multifactorial origin, including genetic and environmental factors. Further, scientific evidence suggests that increased inflammatory stress related to molecular mechanisms leading to insulin resistance, the intestinal microbiota interacting with environmental factors and susceptible genetic factors contributes to the development of diabetes.

Soft drink consumption is a controversial issue for public health. Over the years, numerous studies have been conducted to find the possible links between soft drink intake and diabetes. As a result, increasing emphasis is being placed on the health properties of soft drinks, which leads the production of functional drinks. Hence this review appraises the current literature with the aim of producing a functional drink with probiotic bacteria in order to control blood sugar and prevent type 2 diabetes. Since the efficacy of probiotics is directly linked to the type of strain, the identification of strains used in the intervention are most beneficial for patients with T2D. The study suggested that the probiotics *Lactobacillus acidophilus* and *Bifidobacterium animalis* may have health benefits in people with type 2 diabetes. A study has shown daily consumption of 200 ml of a shake containing 4×10^8 CFU/100ml of *Lactobacillus acidophilus*, 4×10^8 CFU/100ml of *Bifidobacterium bifidum* and 1 g/100 ml of fructooligosaccharides, resulted in blood glucose reduction in diabetes patients. Probiotic bacteria, which is facultatively anaerobic and microaerophilic is encapsulated and inoculated to the functional drink. Thus after ingestion the probiotics become active in the existing optimal temperature around 37°C, tolerating the conditions of the gastrointestinal tract.

The evidence available from experimental studies and clinical trials supports our suggestion that the modulation of the intestinal microbiota by probiotics in functional drinks may be effective towards prevention and management of type 2 diabetes.

Keywords: Gut microbiota, Type 2 diabetes, Functional drinks, Probiotics, inflammation