



RESEARCH PAPER

Fermentation based bio-fortification of Jamun juice using the probiotic bacteria *Lactobacillus acidophilus*

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Abstract : The relationship between food and health has been a topic of key interest for a wide array of researches. Functional foods promote health of an individual besides providing nutrition. Fruit juices have always been considered as a suitable matrix for the development of functional beverages owing to their significant bioactive compounds. Fermentation based biofortification have resulted in the development of functional fruit beverages with improved nutritional profiles. In the present study, probiotic bacteria *L. acidophilus* (NCIM-5307) was used for augmenting/ enhancing total polyphenol content and antioxidant activity of Jamun (*Syzygiumcumini*) fruit juice. Different assays were performed for determining the antioxidant activity viz., ferric reducing antioxidant power (FRAP), chelating effect on ferrous ions and superoxide radical scavenging activity. Results indicated that the total polyphenol content and antioxidant activity was significantly enhanced over a period of 48hrs fermentation. The fermentation process increased the total phenolic content by 39.81%, total flavonoid content by 35.37%, ferric reducing antioxidant power by 33.34% and metal ion chelation activity by 42.61% over non-fermented control. Moreover, the IC₅₀ value of superoxide radical scavenging activity was seen to be dropped by 60.60%. These results provide the foundation for further exploration of the functional benefits of *L. acidophilus* induced fermentation of Jamun fruit juice. Furthermore, the study can be helpful in developing probiotic juices with superior nutritional and medicinal properties.

Key Words : Jamun, Fruit juice, Antioxidant, *Lactobacillus acidophilus*, Fermentation, Probiotics

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