

Abstract:

Fruits are great source of fibre and while processing of fruits a large amount of by product or wastes are obtained in terms of pulps and peels which are very rich source of fiber and other nutrients, consumption of which decreases the incidence of several diseases. On the other hand consumption of probiotic is also beneficial for health as it has several health benefits. Taking all these in concern, this research work was focused on the effect of fiber derived from a local source, on probiotic viability in misti dahi. Assam variety lemon, *Citrus assamensis*, locally known as “kaji nembo”, has a large percent of peel, thus a rich source of fiber. An attempt was made to fortify milk fermented product misti dahi with different levels of fiber, viz. 0.25%, 0.5% and 0.75% and studied the affect on titratable acidity, pH, syneresis, texture and sensory properties of misti dahi during storage period. The incorporation of dahi with *Lactobacillus plantarum* together with different concentration of lemon peel powder was done to observe its viability. The fermentation kinetics was studied extensively. The fermentation kinetics data showed that, the maximum rate of change of pH and corresponding time t_{max} were 0.202 pHmin⁻¹ and 6.5 hours. The start and end of fermentation varied significantly with the addition of peel powder. It was seen that with increase of peel powder the time taken for completing the fermentation process was more and the maximum rate of change of pH and t_{max} were decreased. It was seen that addition of peel powder up to 0.5% increased the viability of *Lactobacillus plantarum* up to 9 days and then started decreasing. Sensory, pH were decreased and titratable acidity, consistency, syneresis were increased with increasing storage time. The study indicated the suitability of using by-product lemon peel powder up to 0.5% level for fortification of misti dahi and formulation of misti dahi with *Lactobacillus plantarum*.

Key-words: misti dahi, citrus fiber, fermentation kinetics, texture, syneresis, probiotic viability