

Development of Fiber Fortified Probiotic *Shrikhand*

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Abstract

Objective: To develop fibre fortified probiotic *shrikhand* with an addition of probiotic culture as well as dietary fiber containing ingredients.

Methods: *Shrikhand* using the probiotic culture thermophilic lactic acid freeze dried DVS (Direct Vat Set) culture (ABY-3) and three fibers banana powder, oat powder and inulin powder were incorporated in *Shrikhand* on w/w basis of expected yield of *Shrikhand*. All the samples were evaluated for the composition, physico-chemical, rheological property i.e. consistency, sensory properties and microbial quality. The data generated during the investigations was statistically analyzed by using Completely Randomized Design.

Results: Three fiber containing powder were incorporated in *Shrikhand* at three rates viz., banana powder @ (B₁: 1.0, B₂: 3.0, B₃: 5.0)%, oat powder @ (O₁:1.0, O₂: 2.0, O₃: 3.0) %, inulin powder@ (I₁:1.0, I₂: 2.0, I₃: 3.0) % on w/w basis of expected yield of *Shrikhand*. These levels were selected based on preliminary trials. The fiber content of banana powder, oat powder and inulin powder was 2.5, 12.8 and 92% respectively. Among the three levels studied for each fiber containing powder, B₃, O₂ and I₁ were selected as the most acceptable rates of addition for fiber fortification in *Shrikhand*. In the next part of the study comparison of *Shrikhand* containing selected level of each fiber containing powder viz. B₃, O₂, I₁ and C was done and O₂ was selected as the best supplementation of fiber followed by I₁ and B₃ and C. *Shrikhand* was prepared using the method described above. The gross composition of the developed cardamom flavor probiotic fiber fortified *Shrikhand* was total solids 59.01%, milk fat 6.37%, protein 5.72%, carbohydrate 44.76%, sucrose 41.47%, ash 0.68% and fiber 0.24 %. The physico-chemical properties and consistency of the developed cardamom flavor probiotic fiber fortified *Shrikhand* was acidity 0.98 % LA, free fatty acids 0.58 µeq/g, soluble nitrogen 0.27 %, water activity 0.938, pH 4.36 and consistency 8.65 N. The total sensory score obtained by the product was 93.28. The probiotic count of the developed product was 8.46 log cfu/g and higher than minimum count (6.00 log cfu/g) to state that product is probiotic. The average yield of chakka was 310g/ lit of skim milk and the average yield of *Shrikhand* 472g / lit of skim milk.

Conclusion: An acceptable quality cardamom flavoured fiber fortified probiotic *Shrikhand* was developed by addition of oat powder 2% by weight expected yield of *Shrikhand*. The product can be consumed with breakfast or meals and designated as a fiber enriched *Shrikhand*. The probiotic count of the developed product was 8.46-log cfu/g, which was much higher than minimum count (6.00 log cfu/g) to state that product is probiotic.

Keywords: Fibre, *Shrikhand*, probiotic, yield
