

DEVELOPMENT OF LACTOSE FREE YOGHURT FORMULATED WITH LACTASE ENZYME AND SOY MILK

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Milk is the most “nearly perfect food” which contains almost all nutrients that people may need. But most of the people are not capable of digesting milk or milk products due to deficiency in an enzyme called “lactase” which hydrolyses milk lactose. Therefore, the present study was aimed to develop a lactose free yoghurt formulated with soy milk and lactase enzyme. The yoghurts were produced with different concentrations of lactase enzyme (0.5 mL/L, 1 mL/L and 2 mL/L) and different mixtures of soya milk to cow milk (1:3, 1:2, 1:1 and 2:1) were formulated with the best level of lactase enzyme. The sensory properties of yoghurts (colour, appearance, smell, mouth feel, texture and overall acceptability) were evaluated with 30 member semi-trained panellists on 5 point hedonic scale. The lactose content of the selected best sample was determined by High Performance Liquid Chromatography (HPLC) method in reversed-phase (carbohydrate column with nonpolar mobile phase of 0.1% H₃PO₄; 0.8mL/L flow rate) and the nutritional analysis (total solid %, ash %, crude protein %, crude fat % and crude fiber %) was followed by AOAC 2000. Furthermore, the pH value, titratable acidity and microbial analysis (*Coliforms*, total plate count and yeast and mould) were carried out once per week through one month storage period. The yoghurt, produced with 1: 2 soya milk to cow milk with 2 mL/L of lactase enzyme was best through the sensory evaluation and it was found as free from lactose (<0.05%). The selected best yoghurt was comprised with total solid (24.91%), crude protein (5.24%), crude fat (3.13%), ash (1.07%) and crude fiber (0.97%). The obtained data of titratable acidity and pH were not exceeded the standards for the yoghurt (1.2 and 4, respectively) and the developed lactose free yoghurt could be stored at refrigerated condition (4 °C) for one month period without detecting *Coliforms*, mould and total plate count. The cost of production was Rs. 10.00 per yoghurt (80 mL) and it can be concluded that lactose free yoghurt can be successfully produced with lactase enzyme and soy milk.

Keywords: Lactase enzyme, Microbial analysis, Sensory evaluation, Yoghurt