

Probiotic Ice Cream Incorporated with Blue Pea Flower (*Clitoria ternatea*) and Dehydrated Banana Flour

H.I.U. Thilakarathna^{*}, G.G.N. Jayarathna and D.C. Mudannayake

Department of Animal Science, Uva Wellassa University, Badulla 90000, Sri Lanka

^{*}Corresponding Author E-mail: isuriupeksha77@gmail.com, TP: +94713645418

Ice cream is an ideal matrix for introducing probiotics in the human diet to offer health benefits to the consumer when administered in appropriate amounts. This study was carried out to develop a probiotic ice cream incorporated with Blue Pea Flower (*Clitoria ternatea*) powder as a natural colourant and dehydrated banana flour as potential prebiotic ingredient. Unripened *Ambun* banana at full maturity stage was sliced, oven dried at 60°C for 26 hours (until moisture content reach (10%) and ground to a fine powder. Banana flour was analysed for moisture content, total soluble sugars, protein, fat and ash contents and used to substitute milk powder in ice cream preparation. Blue Pea flowers (BPF) were oven dried at 40°C for 24 hours, ground to a fine powder and was analysed for moisture content, total anthocyanin content (pH differential method) and colour (colouri meter). Probiotic dairy ice cream were prepared using single strain *Bifidobacterium animalis* - Bb-12 with varying levels of banana flour (0%, 10%, 20%, 30% w/w) and constant level of (0.67% w/v) BPF powder. Colour, pH and viability of Bifidobacteria during frozen storage of ice cream were determined at 7 day intervals. Sensory quality was evaluated under seven-point hedonic scale using 30 untrained panelists. Total anthocyanin content of BPF powder was 1168.92 mg L⁻¹. Moisture, fat, proteins, fiber, total soluble carbohydrates and ash contents in banana flour were, 10.98%, 0.48%, 1.50%, 26.59%, 25.65% and 2.58%, respectively. No significant differences in probiotic counts were observed among banana flour incorporated ice creams and the control. Bifidobacteria counts were not significantly reduced during 7th, 14th, 21st days of frozen storage. However, the viability of probiotics during the storage were higher than the recommended minimum level (10⁹ CFU mL⁻¹). Ice cream with 20% of banana flour was selected as the most acceptable treatment with significantly higher (p<0.05) preference for sensory attributes. Banana flour can be successfully utilized to replace milk powder in probiotic ice cream. Probiotic ice cream with live Bifidobacteria and natural blue colour would be an innovative product to the market.

Keywords: Probiotic; Ice cream; Blue pea flower; Banana flour