

**Development of Dates (*Phoenix dactylifera*) Incorporated
Probiotic Ice Cream**

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ABSTRACT

Ice creams are considered as sweetened frozen confectionaries. Today ice creams are modified as functional foods such as probiotic ice cream, low fat ice cream and ice creams with low sugar which deliver the nutritional and medicinal value to the consumer. However, ice cream that is enriched with nutritional and medicinal properties is rarely found in Sri Lankan food industry. Therefore, this study was conducted to fill the gap in Sri Lankan food industry by replacing the cane sugar in ice cream with Dates (*Phoenix dactylifera*) and by incorporating *Lactobacillus acidophilus* (LA-5[®], CHR Hanson, Denmark) as the probiotic bacteria. Research was carried out at Ceylon Cold Stores PLC (CCS), Ranala, Kaduwela. Laboratory analyses were done at CCS and Uva Wellassa University laboratories. Initially, the basic composition of the ice cream was determined. Three preliminary studies were performed to develop the structure of the ice cream as; selecting the best form and level of Dates incorporated in to ice cream and selecting the best level of fat and stabilizer/emulsifier. Three types of Dates were tested as Date pulp, powdered Dates and commercial Date syrup. Best combination of Dates and sugar for ice cream was determined by combining those in different combinations within the range of 13.3% and 28.52%. The best combination was selected by a sensory evaluation using seven trained panelists. After the preparation of ice cream with appropriate texture, two types of flavours were incorporated in to Dates ice cream as; Date flavour (Akras[®] AU 16668), Rum flavour (Aromco[®] NN15020). Sensory evaluation was conducted to select the most preferred type of flavour in Dates incorporated ice cream. Selected ice cream was used to develop probiotic Dates ice cream. Data were analyzed according to the Friedman test using MINITAB 14 software package and by analysis of variance (ANOVA) using SAS 9.1 software package. When consider the results obtained, Date pulp was selected as the best form of Dates to incorporate to ice cream. Treatment consisted with 13.3% of Dates and 8% of Cane sugar was selected as the best combination. The level of fat and stabilizer/emulsifier which gave the desirable texture to the product was 12% and 0.25% respectively. Panelists prefer ice cream without flavor (control) than with flavors. According to the sensory evaluation, Dates incorporated ice cream without probiotics was preferred by the panelists over probiotic ice cream. This may be due to the slight yoghurt flavor imparted on ice cream by fermentation of lactose during incubation. Finally, Dates incorporated ice cream can be manufactured with 13.3% of Dates and 8% cane sugar.