

## Design of New Baby Food Product Using Whey

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**Abstract :** Nowadays, the removal of whey produced in the dairy processes has been the most important problem in the dairy industry. Every year, about 47% of the 115 million tons of whey produced world-wide are disposed in the environment. Whey is a nutritious liquid, containing whey proteins ( $\beta$ -lactoglobulin,  $\alpha$ -lactalbumin, immunoglobulin-G, proteose pepton), lactose, vitamins (B5, B2, C, and B6), minerals (Calcium, Magnesium, Phosphorous, Potassium, Chloride, and Sodium), and trace elements (Zinc, Iron, Iodine, and Copper). The first objective was to increase the economical and commercial value of whey which is considered as by-product. The second objective of this study was to formulate a new baby food with good nutritional, sensory and storage properties and acceptable to consumers using the cheese whey. The creation of the new product must pass through the following stages: idea stage, development stage which includes the business planning and the product development prototype, packaging stage, production stage, test marketing stage, quality control/sanitation. Three types of whey-based food were selected and prepared by mixing whey and apple, whey and banana as well as whey, apple, and banana. To comply with the recommended dietary allowances (RDA) and adequate intakes (AI) for vitamins and minerals, each sample is formed from 114g of sliced and smashed fruits mixed with 8 mL of whey. Mixtures are heated to 72°C for 15 seconds, and filled in pasteurized jars. Jars were conserved at 4°C. Following the experimental part, sensory evaluation made by an experienced panel took place. Hedonic tests results show that the mixture of whey, apple, and banana has the most delicious and sweetness taste followed by the mixture of whey and banana, and finally the mixture of whey and apple. This study was concluded with a managerial and engineering study that reveals that the project is economically profitable to be executed in Lebanon.

**Keywords :** baby food, by-product, cheese whey, formulation

**Conference Title :** ICMPD 2017 : International Conference on Manufacturing and Process Design

**Conference Location :** Madrid, Spain

**Conference Dates :** September 11-12, 2017