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## Utilization of Minas Frescal Cheese waste to develop whey-grape juice beverage

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### Abstract

Cheeses are among the main dairy products of global importance. In Brazil, the large production of milk associated to the high consumer acceptance regarding dairy products lead to the development of different types of cheeses. The Minas Frescal is a genuinely Brazilian cheese classified as a semi-fat and high moisture cheese. Its production is relatively simple and it does not require maturation of the product, which is beneficial to the producers who receive fast return on their investments. Cheese manufacturing generates a significant amount of fluid waste, named cheese whey, which presents a high amount of organic substances, mainly lactose and high biological value proteins. Those substances can cause great environmental impact if discarded without treatment. Small industries and small producers are still struggling with the excess of cheese whey, and they often opt for discarding it directly to the environment or to the public sewer contaminating soil and water sources due its high biological oxygen demand (BOD). Considerable work has been done throughout the world to use whey for the development of new food products with added value. In this sense, the objective of the present work was to evaluate the sensory characteristics and consumer acceptance of cheese whey and grape beverages. Three factors at three levels each were evaluated by using the Response Surface Methodology (RSM), as follows: whey concentration (60, 70 and 80%, using water for dilution), pH (3.8, 4.0 and 4.2 adjusted with citric and ascorbic acid) and sucrose (5.0, 7.5 and 8.0%). The grape juice concentration was kept at 20% in all formulations. The final formulation of the product took into account values from all three variables that maximized overall acceptability.

**Keywords:** waste, whey beverage, value added product.