

Research Title **Greek Yogurt Development and the Utilization of Greek
Yogurt in Placement of Cream Cheese in the Cheesecake
Products**

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ABSTRACT

The aims of this research project were to develop Greek-style yogurt and to utilize the yogurt in placement of cream cheese in cheesecake products. The first part of the study was to determine the optimum amount of dried ingredients used in the initial milk mixture to make Greek-style yogurt. A 2X3 factorial design was utilized to make Greek-style yogurts. This design utilized two different dried ingredients (skimmilk powder : SMP, and sweet whey powder : SWP) and three levels of total solids in milk mixture (TSM : 15, 25 and 35%) for a total of six treatments. Each treatment was manufactured Greek-style yogurt in triplicate. The Greek-style yogurts obtained were analyzed for pH, % moisture and % yield. Both SMP and SWP yogurts had higher pH with higher initial TS in milk. Increasing initial TS in milk resulted in yogurts with lower % moisture but with higher % yield, with an exception of yogurt at 35% SWP addition that had the lowest yield. Overall acceptance indicated that Greek-style yogurts at 35% TSM had the lowest overall acceptance scores that could be interpreted as 'dislike moderately' - 'dislike slightly'. From all the results, it is feasible to incorporate both SMP and SWP at 15 to 25% TSM to produce Greek-style yogurt. The second part of this study was to determine the impact of skim milk powder and sweet whey powder on the composition of Greek-style yogurt. A 2X2 factorial design was utilized to make Greek-style yogurt. This design utilized two different dried ingredients (skimmilk powder : SMP, and sweet whey powder : SWP) and two levels of total solids in milk mixture (TSM : 15 and 25%) for a total of four treatments. Each treatment was manufactured Greek-style yogurt in triplicate. The milk mixtures from each treatment were analyzed for pH prior to yogurt incubation. The Greek-style yogurts obtained were analyzed for pH, moisture, protein, fat and total sugar in comparison to commercial cream cheese (CCC). The

mean pH of SMP milk mixtures ranged from 6.55 to 6.60, while the pH of SWP milk mixtures ranged from 6.00 to 6.08. SMP and SWP yogurts had similar pH to that of CCC, but had higher moisture and exceptionally lower fat content. Both yogurts at 25% TSM had higher protein content compared to that of CCC. SWP yogurt at 25% TSM had higher total sugar content as compared to other treatments and also to CCC, which could be due to the high amount of lactose present in the powder.

The final part of this study was to determine sensory evaluation of Greek-style yogurts and sensory evaluation of cheesecakes made with Greek-style yogurts. Descriptive sensory analysis was used to monitor sensory attributes of SMP and SWP yogurts obtained from the second study. The sensory attributes were categorized into two groups, which were texture (firm, smooth, creamy), and taste (sour, salty, sweet). The creaminess, sourness, and sweetness scores of SMP yogurts were higher with higher initial TSM. A similar trend was observed with SWP yogurts. The sweetness score of SWP yogurt with 25%TSM was notably higher than other yogurts, which was in accordance with its total sugar content that was also notably higher than other yogurts. The firmness and saltiness scores among all yogurts were not significant different. Finally, 9-Point hedonic scale was used to monitor sensory evaluation of no-bake cheesecake made with SMP and SWP yogurts obtained from the second study in comparison to CCC. Sensory attributes were categorized into two groups, which were texture (firm, smooth, creamy) and taste (sour, salty, sweet, overall acceptance). SMP and SWP cheesecakes had lower smoothness, creaminess, and saltiness scores, while sourness scores were higher as compared to those of CCC cheesecake. Sweetness scores of SMP and SWP cheesecake at 25% TSM were higher than that of CCC cheesecake. Although overall acceptance of SMP and SWP cheesecakes were lower than that of CCC cheesecakes, the scores could still be interpreted as 'like slightly' to 'like moderately'. The results indicate that Greek-style SMP and SWP yogurt could be used instead of cream cheese to make lower-fat cheesecake with acceptable sensory scores.