

**Addition of pectin and whey protein concentrate minimizes the generation of acid whey in
Greek style yogurt**

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The objective of this study was to investigate the effects of pectin and whey protein concentrate (WPC) on the generation of acid whey during Greek style yogurt processing. Pectin (0.05%) and

whey protein concentrate (WPC) (1%) were tested as possible ingredients that reduce the acid whey production. These ingredients were added into the skim milk for yogurt making. The milk samples were then heated at 90°C for 10 min, then rapidly cooled to 40°C and inoculated with 3.0% of active yogurt starter culture. Samples were incubated at 40°C for 4-5 h to allow fermentation to take place and the pH values to drop to approximately 4.6. Yogurt samples were then refrigerated overnight at 4°C. Control yogurt sample was prepared without addition of these ingredients. Yogurt made with combination of pectin and WPC had a significantly higher water holding capacity (WHC) ($P < 0.05$) and lower syneresis than the control. The WHC of yogurt prepared with pectins +WPC was ~ 56%, which is 23% higher than the control. Similarly, yogurt supplemented with pectins + WPC exhibited 15% less susceptibility to syneresis compared to the control. Viability of *L. bulgaricus* and *S. thermophilus* in all yogurts remained ≥ 7.0 and ≥ 8.0 log CFU/g respectively. Similarly, chemical analysis data suggest that the strained yogurts contained protein in the range of 5.83-8.0 %. Native PAGE analysis showed an interaction between pectin and WPC. Pectin hinders the formation of large oligomeric aggregates of whey protein which correlates with an increase in WHC and a decrease in syneresis. Our results demonstrated that a combination of pectin and whey protein concentrate have the potential to limit the quantity of acid whey generated during the manufacture of Greek style yogurt by playing a major role in WHC, and thus have positive implications for industry in the production of Greek style yogurt.