ABSTRACT

It is difficult to produce goat's milk yogurt with the consistency comparable to cow's milk yogurt. In the present study, probiotic goat's milk yogurt was prepared using a commercial starter culture containing *Lactobacillus delbrueckii* ssp. *bulgaricus* and *Streptococcus thermophilus*, probiotics, *Lactobacillus acidophilus*, *Lactobacillus casei* and *bifidobacterium*, and gellation agents, polymerized whey protein (PWP, 0.4%) and pectin (0.3%). Cow's milk yogurt was also prepared as a control. Both yogurts were analyzed for chemical composition, mold and yeast counts, changes in pH, titratable acidity, and viscosity, and probiotic survivability during storage. The gross composition of both goat's and cow's milk yogurts were: total solids: 11.83 ± 0.23% and 12.40 ± 0.09%; fat: 2.81 ± 0.23% and 2.52 ± 0.33%; protein: 3.40 ± 0.05% and 3.42 ± 0.16%; carbohydrates: 4.77 ± 0.42% and 5.71 ± 0.41%; ash: 0.84 ± 0.03% and 0.74 ± 0.01%, respectively. Syneresis of goat's milk yogurt was significantly decreased by addition of PWP. There was no significant difference in viscosity during the 12-week storage. Changes in titratable acidity and pH showed significant difference over the 12 weeks. Both *Lactobacillus casei* and *bifidobacterium* remained viable and their populations were above 10^6 colony-forming units (cfu)/g during storage. However, there were no viable counts of *Lactobacillus acidophilus* by the fourth week for goat's milk yogurt and by the seventh week for cow's milk yogurt. Mold and yeast were not detected in the products. Scanning electron microscopy analysis for the microstructure of goat's milk yogurt showed that PWP interacted with casein micelles to form a comprehensive network in the yogurt gel. The results indicated that PWP may be a novel protein-based thickening agent for improving the consistency of goat's milk yogurt and other products alike.

Key words: goat's milk, yogurt, probiotic, polymerized whey protein