

Chemical Characteristics of Goat Cheese with Different Percentages of Mixed Indigenous Probiotic Culture during Ripening

Publons ID	36329385
Wos ID	WOS:000424819900009
Doi	10.5398/medpet.2017.40.1.55
Title	Chemical Characteristics of Goat Cheese with Different Percentages of Mixed Indigenous Probiotic Culture during Ripening
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Publish Date	APR 2017
Journal Name	MEDIA PETERNAKAN
Citation	4
Abstract	<p>This research was aimed to study the chemical characteristic of goat cheese that used various concentrations of probiotic starter with combinations of <i>Lactobacillus rhamnosus</i> TW2 and <i>Lactobacillus plantarum</i> TW14 isolates. The experiment was conducted with a completely randomized design with a 4 x 4 factorial arrangement. The first factor was the concentration of probiotic starter consisted of 4 levels i.e., 2.5, 5.0, 7.5, and 10% v/v. All probiotic concentrations used the same ratio of <i>L. rhamnosus</i> TW2 and <i>L. plantarum</i> TW14, i.e. 1:1. The second factor was the duration of ripening process consisted of 4 levels i.e., 0 (no ripening), 10, 20, and 30 days at 5 degrees C. The observed variables were cheese chemical properties including water content, protein, fat, ash, pH, total titratable acidity (TTA), free fatty acids (FFA), and proteolysis profile. The results showed that addition of probiotic starter at a concentration of 5% mixture of <i>L. rhamnosus</i> TW2 and <i>L. plantarum</i> TW14 increased ($P < 0.01$) only on ash content. The duration of ripening process up to 30 d significantly increased ($P < 0.01$) protein and fat. Combination of probiotic starter concentrations and duration of ripening process increased ($P < 0.01$) fat and ash contents. Proteolysis profile showed that protein was degraded into 72 and 52kDa proteins, but no 17kDa protein was found in cheese ripened for 30 d. It is concluded that 30 d duration of ripening at 5 degrees C was the main contributing factor to chemical characteristics of cheese including chemical properties, pH, TTA, FFA, and proteolysis profile of probiotic goat cheese, while the concentration of mixed probiotics affected ash content, TTA and FFA of cheese.</p>
Publish Type	Journal
Publish Year	2017
Page Begin	55
Page End	62
Issn	0126-0472
Eissn	2087-4634
Url	https://www.webofscience.com/wos/woscc/full-record/WOS:000424819900009
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