

Evaluation of *Lactobacillus helveticus* as an Adjunct Culture for Removal of Bitterness in Iranian White-Brined Cheese

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Abstract : Bitterness is a flavor defect encountered in some cheeses, such as Iranian white brined cheese and is responsible for reducing acceptability of the cheeses. The objective of this study was to investigate the effect of an adjunct culture on removal of bitterness from Iranian white-brined cheese. The chemical and proteolysis characteristics of the cheese were also monitored. Bitter cheeses were made using overdose of clotting enzyme with and without *L. helveticus* CH-1 as an adjunct culture. Cheese made with normal doses of clotting enzyme was used as the control. Adjunct culture was applied in two different forms: attenuated and non-attenuated. Proteolysis was assessed by measuring the amount of water soluble nitrogen, 12% trichloroacetic acid soluble nitrogen and total free amino acids during ripening. A taste panel group also evaluated the cheeses at the end of ripening period. Results of the statistical analysis showed that the adjunct caused considerable proteolysis and the level of water soluble nitrogen and 12% soluble nitrogen fractions were found to be significantly higher in the treatment involving *L. helveticus* (respectively $P < 0.05$ and $P < 0.01$). Regarding to organoleptic evaluations, the non-shocked adjunct culture caused reduction in bitterness and enhancement of flavor in cheese.

Keywords : bitterness, Iranian white brined cheese, *Lactobacillus helveticus*, ripening

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