

Mozzarella干酪成熟中蛋白水解与功能特性的变化

Changes of proteolysis and functional properties during ripening of Mozzarella cheese

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中文摘要:

为控制干酪的质量, 对Mozzarella干酪成熟过程中蛋白质的水解(测定SDS凝胶电泳和可溶性氮)和未融化干酪的质构变化以及融化干酪功能特性变化进行了研究, 干酪成熟过程中由于凝乳酶和乳酸菌酶的作用使蛋白水解, 从而使pH 4.6可溶性氮(SN)和12% TCA-SN逐渐增加; 凝乳酶主要影响酪蛋白的水解范围, 乳酸菌及其酶, 不但影响酪蛋白的水解范围, 而且主要影响酪蛋白的水解深度。干酪中的残留凝乳酶和乳酸菌酶使酪蛋白水解为大分子量的肽段, 而乳酸菌酶还可将大分子量的肽段进一步降解为小分子量的肽段和游离氨基酸。由于酪蛋白的水解, 使干酪的硬度和弹性下降, 融化性和油脂析出性增加, 随着小分子量肽和游离氨基酸的增加, 干酪的褐变性提高。

英文摘要:

In order to control the quality of cheese, the hydrolysis of protein(measured by SDS-gel electrophoresis and soluble nitrogen), the changes of texture in non-melting cheese and the changes of functional properties in melting cheese were studied during ripening of Mozzarella cheese. Due to rennet and lactobacillus enzymes contributed to the proteolysis, both the pH4.6 acetate buffer soluble nitrogen and 12% TCA-soluble nitrogen increased during cheese ripening. The rennet influences only the extent of casein degradation; however, lactobacillus and lactobacillus enzymes influence not only the extent but also the depth of casein degradation. Casien is first degraded into high molecular mass peptides by residual rennet and lactobacillus enzymes, then the high molecular mass peptides are furtherly degraded into low molecular mass peptides and free amino acids by lactobacillus enzymes. With the hydrolysis of casein, the TPA hardness and TPA springness of cheese decreased, while the meltability and free oil formation of cheese increased. The browning of cheese increases with the increase of the low molecular mass peptides and free amino acids.

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