CHARACTERIZATION OF THE FERMENTATION PROCESS OF CAMEMBERT-TYPE CHEESE BY MOCUR M1 AND GEOTrICHUM PENICILLATUM D1

Jianxin Zhao1, Nan Liu2, Benheng Guo2, Wei Chen1,3, Hao Zhang1
1. School of Food Science and Technology, Jiangnan University, Wuxi, Jiangsu, 214122, China;
2. State Key Laboratory of Dairy Biotechnology, Technical Center of Bright Dairy & Food Co., Ltd., Shanghai, 200436, China;
3. State Key Laboratory of Food Science and Technology, Jiangnan University, Wuxi, Jiangsu, 214122, China.

Camembert cheese is quite popular over the world and has typical hard texture and strong flavors. However, Chinese favor cheese with softer texture and warmer flavor. A new Camembert-type cheese was developed with Mocur M1 and Geotrichum penicillatum D1 isolated from Chinese traditional preserved tofu and stinky tofu. Cheese was produced according to the traditional method and the fermentation process was described in detail. Chemical and physical changes during ripening of 27 days were investigated to understand the fermentation process in the present study. Results indicated that outer and inner pH fell to 5.25 in the prophase of ripening, and then rose to about 7.08 in the end. The proteolysis kept on during ripening, and the rate slowed down from 12d to 20d. Electrophoresis of casein hydrolysates showed the different proteolysis patterns of αs-casein and β-casein and the degree of hydrolysis were 50% and 60% respectively. Fatty acids analysis revealed that the content of stearic acid and linolenic acid increased rapidly from 5d to 15d of the ripening time, while palmitic acid kept decreasing all through the ripening. Medium-chain rather than long-chain fatty acids accounted for the majority at the end of ripening. The volatile compounds like organic acids and alcohol decreased during the ripening, while esters and methyl ketones increased through the ripening. Ethyl hexanoate, 2-heptanone, 2-pentanone and benzaldehyde were recognized as key flavor compounds. This detailed investigation would help us with the control and development of the new Camembert-type cheese.