

农产品辐照研究·食品科学

TGase、CaCl<sub>2</sub>、凝乳酶对Mozzarella干酪硬度的影响

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摘要: 研究TGase、CaCl<sub>2</sub>、凝乳酶复合对Mozzarella干酪硬度的影响,以优化工艺参数。采用三因素二次正交回归设计确定TGase、CaCl<sub>2</sub>、凝乳酶的添加量水平,通过SAS软件RSREG过程,分析三因素主效应、单因子效应及其交互效应对成熟10d的干酪硬度的影响。结果表明,三因素对硬度的影响符合 $Y=B_0+\sum B_jX_j+\sum B_{ij}X_iX_j+\sum B_{jj}X_j^2$ 的三元二次回归模型,其关键参数主效应为TGase( $P<0.01$ )> CaCl<sub>2</sub> ( $P<0.05$ )>凝乳酶( $P>0.05$ );单因子效应均为开口向下的抛物线型,符合报酬递减规律,且以TGase的边际效应较大;TGase和CaCl<sub>2</sub>对干酪硬度有明显的交互作用。最优工艺参数为: TGase 0.952%,凝乳酶0.977%,CaCl<sub>2</sub> 0.095g/L,硬度值29.08N。

关键词: TGase CaCl<sub>2</sub> 凝乳酶 Mozzarella干酪 硬度

EFFECTS OF TRANSGLUTAMINASE, CALCIUM CHLORIDE AND RENNET ON THE HARDNESS OF Mozzarella CHEESE

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Abstract: Effects of TGase, CaCl<sub>2</sub> and rennet on the hardness of Mozzarella cheese were studied to ascertain the optimal processing parameters. Three factors quadratic orthogonal design was adopted to ascertain the content of TGase, CaCl<sub>2</sub> and rennet, and to analyze the major effect, single effect and mutual effect between two factors on the hardness of semi-hard cheese stored for 10 days by the RSREG process of SAS procedure. Results indicated, the factor effect on cheese hardness was accord with the model of  $Y=B_0+\sum B_jX_j+\sum B_{ij}X_iX_j+\sum B_{jj}X_j^2$ , the major effect was TGase( $P<0.01$ )> CaCl<sub>2</sub> ( $P<0.05$ )> rennet( $P>0.05$ ); the single effect was accord with the model of parabola and the regular of decreasing returns, and the edge effect of TGase was bigger than the else factors; TGase and CaCl<sub>2</sub> had obvious mutual effect. The optimum parameter was that the content of TGase, rennet and CaCl<sub>2</sub> were 0.952%, 0.977% and 0.095g/L, respectively, the cheese hardness was 29.08N.

Keywords: TGase CaCl<sub>2</sub> rennet Mozzarella cheese hardness

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