

过氧化物酶催化酪蛋白的交联反应优化与乳化性改善 Cross-linking of Casein by Peroxidase and Modification in Emulsifying Properties

赵新淮 李君文

东北农业大学

关键词: 酪蛋白 辣根过氧化物酶 交联 乳化性质

摘要: 采用辣根过氧化物酶对酪蛋白进行酶促交联, 并经SDS-聚丙烯酰胺凝胶电泳、光谱分析和毛细管电泳验证。利用毛细管电泳、面积归一化方法对交联酪蛋白进行分析并计算交联度; 以交联度为指标、应用响应面分析法对交联条件优化, 得出适宜的条件为: 温度37℃、反应时间2.9h、酶添加量为每克蛋白质4.73 μ kat, 此条件下酪蛋白交联度达到6.9%。与酪蛋白相比, 交联酪蛋白的乳化活性在蛋白质质量分数为0.1%时提高了8.7%, 而其乳化稳定性在蛋白质质量分数为0.3%时提高了21.1%。Cross-linking of casein catalyzed by horseradish peroxidase was studied, which was demonstrated by SDS-PAGE analysis, spectroscopic analysis and capillary electrophoresis analysis. The cross-linking degree of casein was measured by capillary electrophoresis with an area normalization method. Response surface method was applied to optimize the reaction conditions for cross-linked casein. The optimal cross-linking conditions obtained were that enzyme addition level was 4.73 μ kat per gram protein, temperature was 37℃ and reaction time was 2.9h. Under these optimal conditions, the cross-linking degree of casein prepared was about 6.9%. Evaluation results show that emulsifying activity index of cross-linked casein at concentration of 0.01% has an increase of 8.7%, while emulsifying stability index of cross-linked casein at concentration of 0.03% has an increase of 21.1% comparing to that of native casein, which indicates the improvement in emulsifying properties of cross-linked casein.

[查看全文 \(请使用Adobe Acrobat 6.0版本浏览\)](#) [返回首页](#)

[引用本文](#)