

基于Box-Behnken模型的卵清蛋白糖基化制备技术 Optimization of the Preparation of Glycated Egg White Protein by Box-Behnken Model

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关键词: 卵清蛋白 糖基化 乳化性质 Box-Behnken模型

摘要: 采用Box-Behnken模型对卵清蛋白糖基化反应过程进行优化, 测定并分析了糖基化卵清蛋白在各种条件下的乳化性质。结果表明其最佳反应条件为: 糖添加量9%, 反应时间48h, 反应温度60℃, 在此条件下乳化活性为1.328, 乳化稳定性为9.63min, 相对卵清蛋白分别提高了3.7倍和8.75倍。糖基化程度与乳化活性及乳化稳定性的关系符合Lerentz函数。糖基化卵清蛋白的乳化性质相对不受低pH值和高离子强度的影响, 且优于商用乳化剂。研究结果证明, 糖基化是提高卵清蛋白乳化性质的一种有效途径。Box-Behnken model was used to optimize the glycation process of egg white protein. The emulsifying properties of glycated egg white protein (GEWP) were determined and analysed in various conditions. The results showed that the optimized condition of glycation reaction was as follows: 9% of ratio of dextran, 48 hours of time of reaction, 60℃ of temperature of reaction. Then, emulsifying activity and emulsion stability of GEWP, are 1.328 and 9.63min, 3.7 and 8.75 fold against egg white protein respectively. The correlation between degree of glycation and emulsifying activity or emulsion stability of GEWP accords with Lerentz function. The emulsifying properties of GEWP were not affected in acidic pH value and high ionic strength. The results show that glycation is an efficient method to improve emulsifying properties of egg white protein.

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