

鸡肉蛋白酶水解工艺条件的研究

Technological conditions for enzymatic hydrolysis of chicken protein

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中文摘要:

为探索鸡肉酶水解工艺条件及其动力学特性, 分别采用木瓜蛋白酶、胃蛋白酶、中性蛋白酶、菠萝蛋白酶对鸡肉进行了水解试验, 得出最优酶为木瓜蛋白酶; 由此选用木瓜蛋白酶做正交试验, 考察水解温度、时间、加酶量、pH值和固液比5个因素对酶水解的影响, 并确定出最优水解条件为温度50℃, 时间7 h, 加酶量2.4%(以鸡肉的质量百分数计), pH 7.0, 固液比1:4; 在此条件下, 水解度可达26.07%。在此基础上由试验数据推导出描述木瓜蛋白酶水解鸡肉的动力学方程, 可为鸡肉酶解生化反应器的设计和鸡肉水解蛋白液或蛋白粉的开发提供一定的理论依据。

英文摘要:

To study enzymatic hydrolysis conditions and kinetic characterization in chicken processing, papain, pepsin, neutralase and bromelain were used to hydrolyze fresh chicken, respectively. The results showed that papain was the optimal protease. So papain was adopted to do orthogonal experiment, and the effects of temperature, time, enzyme amount, pH value and solid-liquid ratio on hydrolysis were analyzed. Through the analysis of experimental data, the optimal conditions of papain were determined, i.e. temperature 50℃, time 7 h, pH 7.0, enzyme amount 2.4% (2.4 gram papain per 100 gram chicken), solid-liquid ratio 1:4. The degree of hydrolysis was up to 26.07%. Based on this approach and experimental data, a kinetic model equation simulating the enzymatic hydrolysis of chicken was obtained and it could provide basic theoretics for design of biochemical reactors of chicken hydrolysis and development of chicken protein hydrolysis liquid and powder.

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