

## 奶牛初乳冷冻干燥特性与节能工艺优化研究

### Properties and Energy Saving Technologies of Bovine Colostrum During Freeze Drying

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中文摘要:

对奶牛初乳进行了冷冻干燥试验, 通过采用二次正交旋转组合试验设计方案, 分别建立了单位水分能耗和单位面积生产率与冻干室压力、初乳装填厚度、初乳浓度的数学模型。通过降维分析, 给出压力、厚度、浓度对试验指标的影响趋势。在较高生产率约束条件下, 用复形调优法找出低能耗下较优的工艺参数, 即冻干室压力 54.5 Pa, 初乳装填厚度 10.02 mm, 初乳浓度 36.73%

英文摘要:

Bovine colostrum was freeze dried according to the method of quadratic rotation orthogonal experiment. By the experimental data, the mathematics models of energy consumption and productivity, with the freeze drying chamber pressure, colostrum thickness and concentration were established and the effects of the three parameters on the objectives were given. Also, the minimum energy consumption under the restrict conditions of high productivity was conducted. The results were as follows: pressure 54.5 Pa, thickness 10.02 mm, concent ration 36.73%.

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