

低温挤压加酶脱胚玉米粉生产酒精试验 Experiment on Productive of Ethanol for Extruded Corn Grist Degermed with Enzyme Preparation at Low Temperature

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关键词: 脱胚玉米粉 挤压 低温 酒精 酶制剂

摘要: 研究低温挤压加酶脱胚玉米粉, 直接液化、糖化、发酵、蒸馏生产酒精技术, 并考察了脱胚玉米粉挤压前耐高温 $\alpha$ 淀粉酶添加量、挤出物糖化时糖化酶添加量、糖化时间、液化时耐高温 $\alpha$ 淀粉酶添加量、发酵时酵母添加量对醪液的主要考察指标(醪液的酒精度、淀粉出酒率、残总糖)的影响规律。结果表明, 本研究的挤压-糖化-发酵系统主要参数优化值对应的醪液发酵48h的酒精度、淀粉出酒率分别为13.45%和59.21%, 高于对照挤压不加酶脱胚玉米醪液的对应值13.08%和57.85%, 也高于脱胚玉米传统酒精生产工艺醪液的对应值12.89%和56.6%。The technology relating to extruded corn grist degermed with enzyme preparation at low temperature which was liquefied, saccharified, fermented, distilled directly for production of ethanol, was studied. The influence of main parameters of extrusion-saccharification-fermentation system for above extrudate on main evaluation indexes of ethanol mash was researched. These parameters include the added dosage of high temperature resistant  $\alpha$ -amylase into corn grist degermed before extruding, the added dosage of glucoamylase in saccharifying of extrudate, saccharification time, the added dosage of high temperature resistant  $\alpha$ -amylase in liquefaction, and the dosage of yeast in ferment. The main indexes include the ethanol degree, utilization ratio of starch and residual total sugar of ethanol mash. The results indicate that under the condition of optimum value for system parameters, the ethanol degree and utilization ratio of starch of ethanol mash after fermenting for 48h are respectively 13.45% and 59.21%. These values are more than 13.08% and 57.85% of ethanol mash for contrast extruded corn without enzyme preparation. These values are also more than 12.89% and 56.6% of ethanol mash for corn grist degermed with traditional ethanol productive technology.

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