玉米芯糖化微波与酸/碱联合预处理效果实验分析 Experiment Analysis on Pretreatment of Corn Cob Saccharification by Acid and Alkali Coordination with Microwave

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关键词： 玉米芯 预处理 微波 酸碱 纤维素酶 实验

摘 要： 采用微波和酸/碱预处理玉米芯，研究不同微波功率密度和时间对酸/碱预处理后秸秆糖化的影响。结果表明：微波/碱处理组中获得的还原糖平均为51.71 mg，比对照提高了33.82%；微波/酸预处理组中，平均还原糖质量为8.76 mg。酸/碱预处理后进行微波处理，发酵液中的FPA酶活平均为2.23 U/mL和10.90 U/mL，分别比对照提高17.26%和35.05%；CMC酶活平均为3.43 U/mL和12.41 U/mL，分别比对照下降15.96%和提高34.32%。微波处理对碱预处理后的玉米芯优于对酸预处理后的效果。 Pretreatment of corn cob was carried out by microwave/alkali and microwave/acid, including different power densities and time of microwave pretreatment. The results showed that average weight of reducing sugar received by microwave/alkali pretreatment was 51.71 mg, over 33.82% than the control. And the weight was 8.76 mg by microwave/acid. Acid/alkali pretreatments were followed by microwave treatment. Average FPA activities were 2.23 U/mL and 10.90 U/mL in fermentation fluid, respectively, increasing 35.05% and 17.26% compared with the control. Meantime average CMC activities were 3.43 U/mL and 12.41 U/mL, respectively, decreasing 15.96% and increasing 34.32% respectively compared with the control. Alkali pretreatment of corn cob followed by microwave was better than the acid pretreatment.

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