

覃国栋,刘荣厚,孙 辰.NaOH预处理对水稻秸秆沼气发酵的影响[J].农业工程学报,2011,27(13):59-63

NaOH预处理对水稻秸秆沼气发酵的影响

Effects of different concentrations of NaOH pretreatment on anaerobic digestion of rice straw for biogas production

投稿时间: 11/14/2010 最后修改时间: 2/19/2011

中文关键词: [秸秆](#) [沼气](#) [发酵](#) [NaOH预处理](#)

英文关键词: [straw](#) [biogas](#) [fermentation](#) [NaOH pretreatment](#)

基金项目:上海市重大科技攻关项目(08DZ1900405)

作者	单位
覃国栋	上海交通大学农业与生物学院生物质能研究中心, 上海 200240
刘荣厚	上海交通大学农业与生物学院生物质能研究中心, 上海 200240
孙 辰	上海交通大学农业与生物学院生物质能研究中心, 上海 200240

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中文摘要:

以水稻秸秆为原料,在试验室自行设计的小型沼气发酵装置上进行了厌氧发酵试验,研究不同质量百分数NaOH预处理对水稻秸秆沼气发酵的影响。结果表明,经过NaOH预处理后,水稻秸秆组分被破坏,其中半纤维素降解十分明显;产气量较对照组有明显增加,发酵时间有所缩短。其中NaOH质量百分数为6%的处理组产气率最高,为246.6 mL/g(干物质),且甲烷体积分数最高达50%。综合来看,以NaOH质量百分数为6%的预处理效果最为理想。

英文摘要:

The effects of different concentrations of NaOH pretreatment on anaerobic digestion of rice straw for biogas production were investigated. The tests were carried out in self-made anaerobic digestion equipment with rice straw as raw material. The results showed that the components of rice straw were damaged after NaOH pretreatment, and the component of hemicellulose was obviously degraded. Gas yield of pretreatment groups increased significantly compared with the control group. In addition, the fermentation time was shortened. The pretreatment group with NaOH concentration of 6% had the largest gas production yield which was 246.6 mL/g dry material, and the methane content was up to 50%. On the whole, the best concentration of NaOH pretreatment for rice straw was 6%.

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