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Research Abstracts

Study of the effect of Stirring Speed of Glucose Fermentation Using Bacteria *Zymomonas mobilis*

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Abstract: The aim of this research is to study the effect on the stirring speed at the potato starch fermentation process using *Zymomonas mobilis* bacteria. Eight stirring speed were tested in a range of 80 to 150 rpm, all experiments were performed by duplicate in a 72 h period to maintain a constant pH. The increased conversion of sugars and the highest concentrations of ethanol were obtained at a stirring speed of 150 rpm, agitation favored mixing wort allowing greater contact *Zymomonas mobilis* bacteria. During fermentation process, pH, °Brix and CFU were monitored to ensure the adequate performance of the process. pH was stable in the range of 4 – 5. The °Brix was reduced 15.4 % at a stirring speed of 150 rpm, indicating greater consumption of sugars. When performing the fermentation process employing potato starch and *Zymomonas mobilis* at different stirring speeds, we found that agitation at 150 rpm showed a 9.3 % yield greater than 80 rpm. 20.4% higher bioethanol was obtained at 150 rpm. Stable conditions favored the process. A gas chromatographic analysis showed that the major impurities was obtained at slow stirring speed.

Keywords: Fermentation, *Zymomonas mobilis*, stirring speed, ethanol

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