

Documents

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Effect of some fermentation parameters on ethanol production from beet molasses by *Saccharomyces cerevisiae* CAIM13
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Abstract

Problem statement: Some component of fermentation medium showed to reduce the *Saccharomyces cerevisiae* production of ethanol. **Approach:** This study was designed to evaluate the role of some fermentation parameters in affecting ethanol productivity from beet molasses BM by *Saccharomyces cerevisiae* CAIM13. **Results:** Increase in cell concentration (inoculum size) of the yeast above 3.6×10^5 cells/100 mL decreased the ethanol yield. The yeast could tolerate ethanol concentration up to 10% but failed to grow at concentration of 12 and 15%. Employment of a benchscale tank fermenter enhanced the fermentation efficiency. 77% of BM sugars were assimilated after 48h giving a concentration of 5.4% ethanol. Utilization of a cell-recycling technique showed that the tested organism was capable of performing four fermentation cycles. The mud-free, H₂SO₄-treated beet molasses TBM was superior to sucrose in the repeated batch fermentation technique. A continuousflow fermentation technique employing immobilized yeast cells yielded maximum ethanol productivity after 6 days. **Conclusion:** The present investigation has demonstrated the importance of some fermentation parameters in improving the alcoholic fermentation technology of BM. When free cells of *S. cerevisiae*. In the case of immobilized cells, the continuous-flow technique speared superior to the repeated batch-fermentation technique in production of alcohol from TBM. © 2011 Science Publications.

Author Keywords

Batch fermentation; Cell-recycling technique; Crude beet molasses (CBM); Fermentation cycles; Fermentation medium; Fermentation technology; H₂SO₄-treated beet molasses (TBM); Spectrophotometer model; Sucrose solution

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