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Identification of critical parameters for production citric acid using stastical design

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Citric acid is one of the most important bulk produced Organic acids. Citric acid has great worldwide demand due to its low toxicity when compared with other acidulants used mainly in the pharmaceutical and food industries. Any increase in citric acid productivity would be of potential interest and hence there is an obvious need to consider all possible ways to achieve cost reduction in citric acid production by using less expensive substrates. Aspergillus niger is known to produce considerable amounts of citric acid and other organic acids when cultivated in carbohydrate-rich medium. The study was conducted in batch type fermentation Experiments. Statistical Experimental Design was employed for the improvement of citric Acid production from Madhucaindica through batch type fermentation process using *Aspergillus niger* MTCC 282. The results obtained from the two-level full factorial design with six factor combinations show effects free from confounding, that is, all effects are distinguishable from other effects by doing fewer runs or with all possible combinations. The results obtained from twolevel full factorial design showed that Mg 0.05mg/ml, Amm.Sul 0.2 g/l,EDTA 0.2g/l,KH2PO4 2 g/l were found to be major factors for the production of citric acid. The Statistical analysis showed that maximum production of citric acid was obtained at pH 4. Moeove it was also found that accumulation of the product reached maximum, when the amount of biomass was minimal under the conditions involved. The use of substrate in Batch fermentation is economically important and minimizes environmental problems. Global production has now reached 1.8 million tones and there is annual growth of 4.0-6.0 % in demand/consumption of citric acid.

Biography

R. Gopinadh has completed his under graduation in Chemical Engineering and Masters in Biotechnology from Andhra University. He is Pursuing his Ph.D in Biotechnology. He is working in Gitam University as Assistant Professor in Department of Biotechnology. He has published more than 10 papers in reputed journals and serving as a member for Various Technical Committees. His area of interest is in Bioprocess Engineering and Down Stream Processing.

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