Citric acid production using whey by Aspergillus niger and process optimization

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Abstract Introduction: Citric acid is a widely-used fermented product and several methods for decreasing its production cost have been developed. The aim of this study was citric acid production using whey by Aspergillus niger and process optimization. Material and methods: In current study, the effects of initial pH, methanol concentration, sugar source, and time of incubation on the production of citric acid were studied using Tugochi methodology. Results: The pH, methanol concentration, sugar source, and time of incubation have been shown to significant effect on citric acid production by A. niger. The citric acid production was highest with glucose. Citric acid concentrations was increased with the addition of methanol 2%. On the other hand, strong relationships were observed between citric acid production (pH=5). In general, fermentation time up to 14 days resulted in an increase in citric acid production. Eventually, maximum citric acid concentration of 8072/6 ppm was obtained in the presence of glucose, methanol 2%, pH=5, and incubation time of 14 days. Conclusion: The results obtained compare to similar studies with another substrate confirmed that whey could be used as a medium for the industrial production of citric acid. Keywords: Citric acid production, Whey, A. niger

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