

Optimization of Media for Enhanced Fermentative Production of Mycophenolic Acid by *Penicillium brevicompactum*

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Abstract : Mycophenolic acid (MPA) is an immunosuppressant; produced by *Penicillium* Sp. Box-Behnken statistical experimental design was employed to optimize the condition of *Penicillium brevicompactum* NRRL 2011 for mycophenolic acid (MPA) production. Initially optimization of various physicochemical parameters and media components was carried out using one factor at a time approach and significant factors were screened by Taguchi L-16 orthogonal array design. Taguchi design indicated that glucose, KH₂PO₄ and MgSO₄ had significant effect on MPA production. These variables were selected for further optimization studies using Box-Behnken design. Optimised fermentation condition, glucose (60 g/L), glycine (28 g/L), L-leucine (1.5g/L), KH₂PO₄ (3g/L), MgSO₄.7H₂O (1.5g/L), increased the production of MPA from 170 mg/L to 1032.54 mg/L. Analysis of variance (ANOVA) showed a high value of coefficient of determination R² (0.9965), indicating a good agreement between experimental and predicted values and proves validity of the statistical model.

Keywords : Box-Behnken design, fermentation, mycophenolic acid, *Penicillium brevicompactum*

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