

Statistical Optimization of Vanillin Production by *Pycnoporus Cinnabarinus* 1181

Authors : Swarali Hingse, Shraddha Digole, Uday Annapure

Abstract : The present study investigates the biotransformation of ferulic acid to vanillin by *Pycnoporus cinnabarinus* and its optimization using one-factor-at-a-time method as well as statistical approach. Effect of various physicochemical parameters and medium components was studied using one-factor-at-a-time method. Screening of the significant factors was carried out using L25 Taguchi orthogonal array and then these selected significant factors were further optimized using response surface methodology (RSM). Significant media components obtained using Taguchi L25 orthogonal array were glucose, KH_2PO_4 and yeast extract. Further, a Box Behnken design was used to investigate the interactive effects of the three most significant media components. The final medium obtained after optimization using RSM containing glucose (34.89 g/L), diammonium tartrate (1 g/L), yeast extract (1.47 g/L), $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ (0.5 g/L), KH_2PO_4 (0.15 g/L), and $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ (20 mg/L) resulted in amplification of vanillin production from 30.88 mg/L to 187.63 mg/L.

Keywords : ferulic acid, *pycnoporus cinnabarinus*, response surface methodology, vanillin

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