

# OPTIMIZATION OF MEDIUM COMPOSITION FOR MONACOLIN K PRODUCTION BY MONASCUS RUBER USING RESPONSE SURFACE METHODOLOGY

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## ABSTRACT

IN THIS STUDY, MONACOLIN K WAS PRODUCED BY MONASCUS RUBER CCRC 31535 IN FLASK CULTURE. IN PRELIMINARY STUDY, THE SUITABLE CONCENTRATION OF THE GLYCERIN CARBON SOURCE WAS INVESTIGATED. THE OPTIMUM CONCENTRATION OF GLYCERIN WAS FOUND AT 26.4 ML/L IN THE CULTURE OF 25 , PH 5.0 AND 25 ML OF THE RICE-GLYCERIN COMPLEX MEDIUM, AND 150 RPM IN THE SHAKER. THE AVERAGE YIELD OF MONACOLIN K WAS 0.131 MG/ML. IN ADDITION, RESPONSE SURFACE METHODOLOGY WAS USED TO OPTIMIZE THE CONCENTRATIONS OF THE RICE POWDER-GLYCERIN COMPLEX COMPOSITIONS AND TO EVALUATE THE EFFECTS OF THE COMPOSITION CONCENTRATIONS ON MONACOLIN K PRODUCTIVITY. THE ANALYSIS OF VARIANCE INDICATED THAT THE QUADRATIC TERMS OF FOUR COMPOSITIONS (RICE POWDER, PEPTONE, GLYCERIN, GLUCOSE) IN THE QUADRATIC MODEL WERE SIGNIFICANT. THE OPTIMUM COMPOSITION FOR MONACOLIN K PRODUCTION WAS FOUND TO BE 34.4 G/L RICE POWDER, 10.8 G/L PEPTONE, 26.4 ML/L GLYCERIN, 129.2 G/L GLUCOSE, 2 G/L KNO<sub>3</sub> AND 1 G/L MGSO<sub>4</sub>.7H<sub>2</sub>O. WITH THESE COMPOUNDS, THE AVERAGE MONACOLIN K PRODUCTION WAS 0.131 MG/ML AFTER 10 DAYS OF CULTIVATION, WHILE THE PREDICTED MAXIMUM PRODUCTION WAS 0.130 MG/ML. FOR THIS KIND OF COMPLEX MEDIUM, IT WOULD BE GOOD FOR MONACOLIN K PRODUCTION BY M. RUBER CCRC 31535.

Keywords : MONASCUS RUBER, MONACOLIN K, RICE-GLYCERIN COMPLEX MEDIUM, RESPONSE SURFACE METHODOLOGY

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