

Investigation of Growth Yield and Antioxidant Activity of *Monascus purpureus* Extract Isolated from Stirred Tank Bioreactor

Authors : M. Pourshirazi, M. Esmaelifar, A. Aliahmadi, F. Yazdian, A. S. Hatamian Zarami, S. J. Ashrafi

Abstract : *Monascus purpureus* is an antioxidant-producing fungus whose secondary metabolites can be used in drug industries. The growth yield and antioxidant activity of extract were investigated in 3-L liquid fermentation media in a 5-L stirred tank bioreactor (STD) at 30°C, pH 5.93 and darkness for 4 days with 150 rpm agitation and 40% dissolved oxygen. Results were compared to extract isolated from Erlenmeyer flask with the same condition. The growth yield was 0.21 and 0.17 in STD condition and Erlenmeyer flask, respectively. Furthermore, the IC₅₀ of DPPH scavenging activity was 256.32 µg/ml and 150.43 µg/ml for STD extract and flask extract, respectively. Our data demonstrated that transferring the growth condition into the STD caused an increase in growth yield but not in antioxidant activity. Accordingly, there is no relationship between growth rate and secondary metabolites formation. More studies are needed to determine the mass transfer coefficient and also evaluating the hydrodynamic condition have to be done in the future studies.

Keywords : *Monascus purpureus*, bioreactor, antioxidant, growth yield

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