Screening of Significant Factors for Red Pigment Production by *Monascus Purpureus FTC 5356* under Solid State Fermentation using Factorial Design

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Abstract

Factorial design experiment was used to screen the critical factors influencing the production of red pigment by *Monascus Purpureus* FTC 5356 under solid state fermentation. Five factors such as initial moisture content, nitrogen source concentration, ratio of petiole-leaflet, initial pH value of substrate, and inoculum size were screened in sixteen experimental runs as per design. To reduce the cost, the feasibility of oil palm fronds (OPF) as an alternative substrate was investigated. Among various factor screened, ratio of OPF petiole-leaflet and initial pH value of OPF substrate had contributed to be highly significant with the probability value, P value < 0.05. Meanwhile, initial moisture content, inoculum size and nitrogen source did not significantly affect the red pigment production. For more exact idea, further optimization need to be done to optimize the significant factors that contributed for red pigment production.

Keywords: red pigment; factorial design; *Monascus Purpureus*, solid state fermentation, oil palm fronds.