

Title : Optimization of *Monascus* Pigments Production and stability for use as Food Colorants

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ABSTRACT

The use of pigments from *Monascus* as a food colorant has a long history and is widely applied in various industries. *Monascus* produces metabolites that support protect cells from stress while generating a variety of pigments. The pigments derived from *Monascus* include yellow, orange, and red, with the quantity of each pigment varying depending on the strain of the fungus and growth conditions. This study aimed to determine the optimal conditions for the production of red and yellow pigments from *Monascus* sp. Tb3 and R5. The results showed that the optimal conditions for red and yellow pigments varied when cultivated on five different solid media at varying temperatures and pH levels. Pigments were extracted using ethanol, and their absorbance was measured with a spectrophotometer. The results indicated that the optimal conditions for maximal red pigment production were potato dextrose agar, 25°C, and pH 8. In contrast, the highest yellow pigment production was obtained on potato dextrose agar, 35°C, and pH 8. Furthermore, the extracted pigments were analyzed for toxicity levels using high-performance liquid chromatography, tested for stability under different temperatures, light, and pH conditions, and evaluated for their potential use as food colorants.

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