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CHARACTERIZATION OF BIOACTIVE COMPOUNDS PRODUCED BY *MONASCUS* SPECIES DURING THE FERMENTATION OF SOME FOOD INDUSTRIAL WASTE AS SOLID STATE SYSTEM

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ABSTRACT

The present study was carried out to optimize the pigment and monacolin productivity by *Monascus* isolates under solid state fermentation. The effect of physical and nutritional factors and different substrates for the enhancement of pigment and monacolin production were studied. Soybean residue (okara) and whey byproducts from food industry were used as substrates for propagation of *Monascus* isolates (M1 and M2). M1 and M2 isolates grew well on okara and whey giving the highest yield of pigment and monacolin K concentration in the optimized conditions of fermentation. The highest pigments production by the tested isolates on substrate medium was achieved at 30°C of incubation with an initial moisture content up to 35% and 50% for *Monascus* isolates M1 (3.85 Uml⁻¹) and M2 (4.28 Uml⁻¹), respectively. Whereas, the maximum production of monacolin was 11.82 and 14.16 µg ml⁻¹ (P>0.05) at 25°C and 50% moisture for *Monascus* M1 and M2, respectively. The optimum conditions for pigment and monacolin production by the most efficient isolate M2 were recorded at initial pH 4.5, 50% of moisture content and fermentation temperature 30°C (4.28 Uml⁻¹) for pigment and 25 °C for monacolin (24.31 µg ml⁻¹). This isolate was identified as *Monascus ruber* strain by 18 S rRNA analyses.

Key words: *Monascus* sp., Solid-state fermentation, Pigment, Monacolin, Byproduct, Waste.