

عنوان مقاله:

Isolation and Characterization of Melanin Producing *Pseudomonas stutzeri* Strain UIS2 in the Presence of L-tyrosine and Survey of Biological Properties of Its Melanin

محل انتشار:

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خلاصه مقاله:

Background: Melanin is a negative charge hydrophobic complex pigment. Melanin is produced naturally in bacteria to protect them against UV, free radicals and environmental stresses. Pigment production in bacteria has more advantages than other biosources due to its rapid growth, higher efficiency and easier extraction. The aim of this study was the isolation, biochemical and molecular identification the melanin pigment producing bacterium in the presence of L-tyrosine and the evaluation of the pigment biological properties. Methods: The soil sample was collected from the University of Isfahan Park, and cultured in nutrient agar medium containing L-tyrosine. The colony with brown halo was isolated and identified using phenotypic and molecular methods. The bacterial growth and melanin production were evaluated by spectrophotometry at 600 and 400 nm, respectively. The melanin pigment was extracted by increasing the acidity of the broth culture supernatant. The melanin production yield, antioxidant activity and sun protection factor (SPF) of melanin were determined. Results: *Pseudomonas stutzeri* strain UIS2 capable to grow in nutrient agar and melanin production, was isolated and registered in NCBI GenBank with accession no. MG519615. The maximum melanin production was obtained 600 mg l⁻¹ by isolated strain. The antioxidant property of melanin in DPPH test was determined as 74.9% and its SPF was 49.05 U/mL. Conclusion: The melanin pigment from the isolated *Pseudomonas* showed high SPF and high antioxidant activity against ROS stresses. So, it can be suggested as a suitable candidate for application in cosmetic, pharmaceutical, and environmental decontaminant.

کلمات کلیدی:

Antioxidant, SPF, Melanin pigment, *Pseudomonas stutzeri*, رنجدانه ملانین, SPF, آنتی اکسیدانت, سودوموناس استوتزری

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