

عنوان مقاله:

Bacterial pigments and its significance

محل انتشار:

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خلاصه مقاله:

Synthetic pigments have been widely used in various applications since the ۱۰۹۹s. However, the hyperallergenicity or carcinogenicity effects of synthetic dyes have led to the increased research on natural pigments. Among the natural resources, bacterial pigments are a good alternative to synthetic pigments because of their significant properties. Nontoxic nature of pigment produced by a number of microorganisms make them environmentally friendly for utilization in dye, foodstuff, pharmacy, cosmetics and other industrial purposes. Aims : Bacterial pigments are promising compounds in the prevention and treatment of various cancers. In the current study, the antioxidant, cytotoxic and antimicrobial effects of a red pigment obtained from a marine bacterial strain were investigated. Methods and Results : Optimization of the pigment production by the marine strain was conducted using the one-factor-at-a-time approach. Chemical identification of the pigment was achieved by UV-visible, FTIR and HPLC analyses. The biological activities of the pigment were evaluated by DPPH, MTT and microbroth dilution assays. The strain was identified as Arthrobacter, and its pigment was related to carotenoids. The EC₅₀ antioxidant activity of the pigment was evaluated as ۴/۵ mg ml⁻¹. It showed moderate anticancer effects on an oesophageal cancer cell line, KYSE۳۹, while no inhibition was observed on normal HDF (human dermal fibroblasts) cells. The pigment had no antibacterial effects on the four tested strains. Conclusion : The antitumour activity of a carotenoid-related pigment from Arthrobacter sp. was reported for the first time. Significance and Impact of the Study : Marine environments are interesting sources for the identification of novel bioproducts. The identification of carotenoid pigments from marine bacteria with remarkable antioxidant and anticancer activities would result in better insights into the potential pharmaceutical applications of carotenoids and marine environments.

کلمات کلیدی:

Bacterial pigments, microorganism, antimicrobial activities, biocolorants

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