

**Title: MARINE BACTERIA EVALUATION AS ULTRAVIOLET PROTECTION PIGMENTS PRODUCTION**

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**Abstract:**

The use of sunscreens to protect against ultraviolet radiation damage is necessary and growing. The search for natural products is a global concern, as these have lower rates of toxicity and allergenic potential. Microbial pigments are a good alternative as sunscreen active, due to the rapid growth of these micro-organisms and the possibility of overproduction of its molecules. Thus, this study evaluated marine bacteria of ocean and coastal origin for their ability to produce pigments with protection against ultraviolet radiation type A and B. We used microorganisms previously isolated and new isolates. The UV resistance was tested by exposing the organisms to different irradiation times, and proven qualitatively by the presence of resistant colonies, and quantitatively by evaluation of cell growth. Four microorganisms resisted the maximum time tested, 150 seconds of exposure. The growth of three of the organisms did not differ significantly among the different times tested. The pigments produced ranged from light beige to yellow and orange, and were drawn to check the absorption spectra. A total of five microorganisms has shown the ability to produce pigments that absorb light in the corresponding track to UV. Among these, three have been already identified - *Planomicrobium okeanokoites*, *Micrococcus luteus* and *Kytococcus sedentarius*. The colors of the bacterial colonies studied are consistent with the carotenoid pigments. Carotenoids are fat-soluble hydrocarbons commonly found in nature, with more than 600 structures characterized, and are known, among other things, to act as cell protectors against photo oxidative damage. It has been mentioned in the literature that *M. luteus* produces a carotenoid, the Sarcinaxantina, which absorbs ultraviolet radiation in the range of type A. For the other two species this is the first time that their photoprotective potential is reported.

**Keywords:** Ultraviolet protection. Pigments. Marine microorganisms.

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