



## Biotechnological Potential of Sun-Screening Molecules from Microorganisms

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**ABSTRACT:** Solar light with high incidence of harmful ultraviolet (UV) radiation is highly menacing for survival of life in the sun-exposed environment. The high-energetic UV (280–400 nm) radiation has great potential for cell damage either through direct effects on cellular key machinery such as DNA, and proteins or indirectly via the production of reactive oxygen species (ROS), leading to mutagenesis, and loss of fundamental cellular physiology and metabolic functions. UV radiation is considered one of the main causes of sunburns or nonmelanoma skin cancers (NMSC). Moreover, survival of several microorganisms under intense solar radiation has positively compelled them to synthesize a number of photon absorbing molecules. Mycosporine and melanin are the most important UV-absorbing biomolecules which show great efficacy to minimize the production of reactive oxygen species and formation of DNA lesions. These molecules display multiple roles, functioning as a potent UV sunscreen and antioxidant molecules, and can be exploited in cosmetic and other industries for the development of novel cosmeceuticals. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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