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Sun care from the sea

INGREDIENTS

Abstract

Larissa Bright Australia has partnered with AIMS and CSIRO to investigate filters that translate the sun screening ability of corals into molecules that could protect the consumer from UV rays



Located off the coast of Queensland, Australia's world heritage listed Great Barrier Reef is one of the seven wonders of the natural world and host to the world's most diverse marine ecosystem and its largest coral ecosystem. Despite being exposed to the highly damaging ultraviolet (UV) radiation of the Australian climate for extended periods of time, the shallow water corals of the Great Barrier Reef appear to be able to thrive under conditions of extended solar irradiation. It has been known for some time that coral extracts contain one or more UV absorbing substances^[1], but their identity and mechanism of action was, until recently, a mystery. Research from scientists at the Australian Institute of Marine Science (AIMS) helped to solve this puzzle with the identification of a family of mycosporine-like amino acids (MAAs) as being present in the corals^[2,3].



Larissa Bright and CSIRO scientist Dr Mark York

These compounds are thought to be secondary metabolites produced by the algae which live in symbiosis with the corals of the Great Barrier Reef. They possess the ability to absorb light and examples of these compounds which absorb ultraviolet light have been isolated. The identification of the role of the MAAs as nature's sunscreen has been further reinforced by experimental observations of a correlation between UV exposure and levels of MAAs present^[4]. The structure of some representative examples, along with their absorbance maxima can be seen in figure 1.

The need for photoprotection

Australia's harsh climate is well known for the damage it can do to skin – the country possesses the highest per capita incidence of skin cancer in the world, with approximately two out of every three Australians being diagnosed with skin cancer by the age of 70^[5].

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