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Protection from the Effects of Ultraviolet Radiation by the Encapsulating Structures of Embryos of *Physa* SP., a Freshwater, Pulmonate Snail

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PROTECTION FROM THE EFFECTS OF ULTRAVIOLET RADIATION BY THE ENCAPSULATING STRUCTURES OF EMBRYOS OF *PHYSA* SP., A FRESHWATER, PULMONATE SNAIL

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The genus *Physa* includes freshwater pulmonate snails that inhabit shallow environments well within depths penetrated by ultraviolet (UV) radiation. The distribution patterns of egg masses of *Physa* sp. indicate that the snails lay egg masses in sunlit areas and the masses are attached to rocks and debris such as leaves and twigs. Each mass consists of a viscous jelly covering that encases a variable number of embryos. Each of the embryos is individually surrounded by an egg capsule. Field-collected masses had debris and epifaunal organisms attached to the jelly. Preliminary studies of the effect of UV radiation on the developing embryos of these snails indicated that embryos surrounded by the capsule and jelly coat experienced no detriment from UV exposure. However, removal of the jelly coat from encapsulated embryos and subsequent exposure to UV radiation resulted in a >90% mortality. The UV absorption of the jelly coat was measured in both laboratory-raised and field-collected egg masses using a UV-Vis spectrophotometer. Absorption of energy by the jelly covering was between the wavelengths of 275-300 nm. This is consistent with absorption of UV-B radiation. The fact that no difference was detected in absorbance between field and laboratory egg masses suggests that the jelly is providing protection, rather than any organism or material adhered to the egg jelly.