

BIOACTIVITY AND CHEMICAL ECOLOGY OF AN OPISTHOBRANCH,
ELYSIA SP. AND THE DIETARY ALGA *BRYOPSIS PLUMOSA*

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ABSTRACT

Many of the sacoglossan gastropods are specialist herbivores and employ a variety of defensive strategies to escape predation. The relationship between the sacoglossan, *Elysia* sp. and the green alga *Bryopsis plumosa* (Hudson) Ag. was investigated. Feeding preference assay revealed a strong preference for *Bryopsis plumosa*. Extracts of both the alga and sacoglossan and also the mucous secretion showed significant deterrent activity against herbivorous and carnivorous fishes in the field experiments. The metabolites were ichthyotoxic against *Gamhusia affinis*. The algal and sacoglossan extracts exhibited a broad spectrum of antimicrobial activity and also showed moderate cytotoxicity against murine cancer cell lines, Dalton's lymphoma and Ehrlich ascites. The results of the investigation revealed that by feeding on the chemically defended alga, *Bryopsis plumosa*, the sacoglossan *Elysia* sp. sequestered the bioactive metabolites, and may use the same to defend against microbial pathogens, and also deter potential predators.