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CUVIERIAN TUBULES IN TROPICAL HOLOTHURIANS: USEFULNESS AND EFFICIENCY AS A DEFENCE MECHANISM

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The tropical holothurians, *Holothuria leucospilota*, *Bohadschia argus* and *B. marmorata* responded to tactile stimulation by expelling Cuvierian tubules in proportion to the intensity of the stimulation. They were able to target the stimulated area with variable success depending on the location of the stimulus. Field surveys showed that 2.3–6.1% of *H. leucospilota* presented signs of having recently used their Cuvierian tubules and laboratory experiments revealed that they released tubules in response to several natural predators. The tubules did not adhere nor cause any distress to fish, but proved effective in discouraging attacks. Crabs, molluscs and echinoderms were entangled and also efficiently repelled. *H. leucospilota* without tubules were wounded and even killed by predators that were usually discouraged by tubule discharge. Conversely, after having induced the release of tubules once, 96% of the predators placed in the presence of *H. leucospilota* three days later remained at a distance. Released tubules that did not adhere to any surface were quickly retracted, while regeneration of a complete set of tubules took 15–18 days. The release of Cuvierian tubules by tropical holothurians therefore appears to be a sensitive defence mechanism. Data on *H. leucospilota* further suggest that they are readily used against predators in the field.

Keywords: *Bohadschia*; Cuvierian tubules; defence; *Holothuria*; holothurians

INTRODUCTION

Tropical holothurians are mainly distributed in coastal habitats (Colin and Arneson, 1995) where potential predators are believed to be abundant (Bakus, 1968; 1973; 1974). A recent review by Francour (1997) listed 76 known

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