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Bioluminescence in *Amphipholis squamata*: An anti-predator aposematic deterrent function?

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Amphipholis squamata is a small bioluminescent species. The disc of adult individuals measures ca. 3.5 mm in diameter and their arms ca. 15 mm in length. Ophiuroids were collected at low tide at Langrune-sur-Mer (Normandy, France) under stones in the infralittoral zone. They live in association with small-sized crabs of several species. *A. squamata* is a polychromatic species. The six colour varieties (orange, beige, dark brown, grey, black, spotted) observed in the population live together and present different capacities of producing light (intensity of luminescence increases by 3 orders of magnitude from the orange to the spotted varieties).

Assuming crabs are predators of *A. squamata*, the present study aimed to determine whether luminescence could be part of *A. squamata* defence strategy. Investigations consisted in observing light production using a camera video system coupled to light intensifier by individuals in the presence of crabs and in analyzing the frequency of regenerating arms of individuals of different colour varieties within their natural habitat and of individuals bred in aquaria in the presence of crabs.

Results indicated that bioluminescence in *A. squamata* is not associated with an aposematic signal as usually said. Yet autotomized arms produce light and could act as sacrificial lures. The role of luminescence as an intraspecific way of communication is discussed.