



The Spanish Dancer Nudibranch

Joseph R. Pawlik

Disturbed from its resting place on a Pacific coral reef, the Spanish dancer nudibranch (*Hexabranhus sanguineus*) displays the red and white margins of its mantle as if to say, *Back Off!* These brightly colored marine slugs lack the hard shell that encloses most other molluscs, including snails, clams, and oysters. Instead, these and other nudibranchs in the suborder Doridacea protect themselves

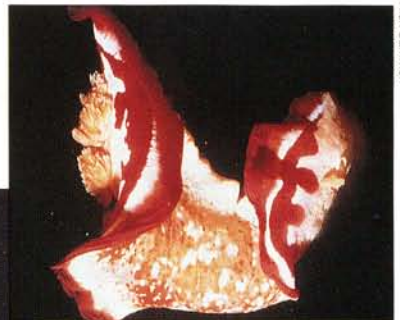
with distasteful chemical compounds. The Spanish dancer's defensive compounds, trisoxazole macrolides, are derived from a black sponge, *Halichondria* sp., that the nudibranch eats. Stored in the nudibranch's body wall, the macrolides repel attacks by voracious reef fish and crabs. High concentrations of macrolides are also found in this slug's beautiful egg ribbon where in addition to

foiling predators they may also prevent the growth of pathogenic microorganisms.

The Spanish dancer is one of the largest (to 25 centimeters) and most active nudibranch molluscs, and is a common and conspicuous inhabitant of coral reefs



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Rick Sammon

The Spanish dancer nudibranch is vibrantly colored, and well protected with its chemical defense system. This marine slug earned its name by swimming in a pattern reminiscent of a flamenco dancer, as at upper right. (Upper right photo from Seven Underwater Wonders of the World, to be published in October 1992.)

throughout the Indo-Pacific. Unlike most nudibranchs, *H. sanguineus* has a spectacular swimming pattern: Its body is thrown into sweeping head-to-toe flexions that undulate through its vivid mantle margins. Herein lies the origin of the nudibranch's common name, as the patterns seem to simulate a flamenco dancer's gyrations. This animal was photographed from above, with its head pointed down. The two projections on its head, called

rhinophores (literally "nose-bearers"), sense and locate both prey sponges and prospective mates. The nudibranch's gill is the frilly, branched structure at the top of the photo. The dark red and white mantle margin is very thin, so all the body organs are contained within the pink region.

All dorid nudibranchs are simultaneous hermaphrodites, meaning that they function as males and females at the same time. This reproductive adaptation may have evolved to insure the fertilization of as many eggs as possible during their infrequent and very brief mating encounters. After mating, Spanish dancers lay their eggs in coiled ribbons on coral rubble. The eggs hatch after several days, releasing



Burt Jones & Maurine Shimlock

Although lovely to look at, the Spanish dancer nudibranch's egg case is bad tasting at best—and toxic at worst.

microscopic planktonic larvae that require several weeks of development before metamorphosing into tiny juvenile slugs. The stimulus for this transformation has not yet been identified, but metamorphosis probably occurs when the larvae settle on one of the

few sponge species that the adults eat.

The noxious metabolites harbored in sponge tissues make this "food" unavailable to most invertebrates and fishes, but sponge prey is a specialty of dorid nudibranchs. The bright, warning-color patterns of marine slugs like the Spanish dancer probably evolved in concert with the loss of their protective shells and the emerging use of chemical defense derived from their diets. For these slugs, then, the best defense is something offensive! ➔

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