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Distribution of *Idanthyrsus cretus (*Polychaeta: Sabellariidae) in the Tropical Eastern Pacific and application of PCR-RAPD for population analysis

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Abstract

Sabellariid polychaetes, commonly known as honeycomb worms, are capable of forming large reef-like aggregations. One species, *Idanthyrsus cretus*, has recently been found in several localities during surveys of Las Perlas Archipelago, Pacific Panama. Large reefs of this species have not been recorded elsewhere in the Tropical Eastern Pacific. The reef distribution patterns were examined and mapped with the aid of Geographical Information Systems. Principal Component Analysis showed that the distribution of polychaete reefs in Las Perlas Archipelago and the reef building itself seem to be mainly dependent on depth, suitable substrate, and topography, the potential particle size for tube building, and wave exposure. Cluster analysis of Random Amplified Polymorphic DNA with Polymerase Chain Reaction molecular techniques demonstrated that the polychaete reefs in Las Perlas Archipelago may be derived from one population.

Key words: Polychaeta, Sabellariidae, distribution patterns, Tropical Eastern Pacific, population analysis, molecular techniques

Introduction

Sabellariid polychaetes, commonly known as honeycomb worms, form large reef-like aggregations in many parts of the world, including the Tropical Eastern Pacific (TEP). Since the first records in 1904 (Chamberlain 1919), many specimens of *Idanthyrsus cretus* have been collected from the Pacific coast of Colombia (Hartman 1940), Costa Rica (Hartman 1944), the Galapagos Islands (Hartman 1944; Kirtley 1994), Ecuador (Hartman 1944), and other localities in Panama (Monro 1933; Fauchald 1977; Kirtley 1994). These sites are all in the surf zone (Fig. 1) where the cool (18º–22ºC) Peru Current (PC) initially joins the warmer South Equatorial Current (SEC), and then moves westward toward the equator. The PC and the trade winds from the NE produce a coastal upwelling that brings nutrient-rich sea water (Glynn & Mate 1997). The turbidity is caused, therefore, by high nutrient waters that promote the phytoplankton blooms during the dry season (upwelling) and by the sediments released (siltation) with freshwater discharges from rivers due to erosion of adjacent land masses during the wet season (Macintyre et al. 1992, D´Croz & Robertson 1997).

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