



# Incidence of *Polydora* sp. (Spionidae: Polychaeta) on mangrove oyster *Crassostrea rhizophorae* (Guilding, 1828) in two coastal lagoons of Margarita Island, Venezuela.



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## Introduction

The infestation of mollusks bivalves of commercial importance, by spionids polychaetae belonging, mainly, to genera *Polydora*, *Dipolydora* and *Carazziella*, has been recorded in many occasions (5, 9). These organisms excavate burrow into shells affecting the growth of the bivalves infested and increasing its mortality, mainly by weaken the shell and making them more susceptible to diseases. In Venezuela few studies detailed on the epibiosis in bivalves of commercial interest (6, 7, 8) and no related to *Crassostrea rhizophorae* have been made. The little references indicate that this species is affected mainly by cirripeds, sponges and by *P. websteri* (4). A quantitative analysis of the impact of the infestation of mangrove oyster by *Polydora* sp. in La Restinga and Las Marites lagoons was made in order to know the preference the worm by one valve or another one, and to analyze the relation between the size and the biomass of bivalve and the intensity of polychaete infestation

## Study area



*Crassostrea rhizophorae* (Guilding, 1828)

## Methodology

Monthly collects (January-August 2002) were made. Bivalves were separated from mangroves roots growing in La Restinga (11°00'00"N-64°10'00"W) and Las Marites (10°53'00"N-63°53'54"W) coastal lagoons. The presence or absence of the polychaetes, the intensity of the attack was recorded in both valves of each specimen in order to establish infestation levels according to polychaetes spionid abundance (2). T-test (to compare the abundances of galleries between valves), Pearson correlation (between the biomass of each compartment of bivalvo with the number of galleries in valves) and ANOVA (to compare the monthly level of the infestación) were made.

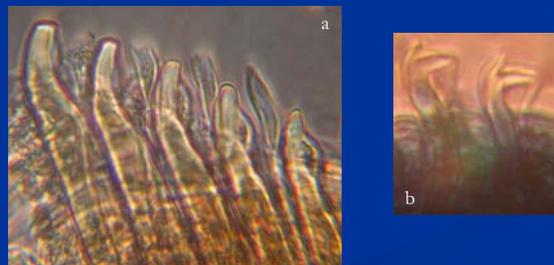
## Results and discussion

One hundred seventy-five bivalves, from La Restinga, were examined, verifying that 64.57% of these were infected by *Polydora* sp. 13.71% showed a intense infestation level, and 66.67% of those with commercial size (60-90mm) were infested. Not significant differences between the monthly biomass of the compartments and number of galleries were observed. Highly significant differences in the abundance of galleries between valves were found ( $T_s=5.786^{**}$ ,  $p < 0.001$ ), being the right valve more infected, because it is the more exposed. In Las Marites lagoon, 260 bivalves were examined and only four oysters were infested, representing a 2% of incidence. Apparently the infestation, is the answer to some environmental conditions, as the temperature, the intertidal levels, the oyster's density and the salinity (3). In this study, the salinity is the only parameter that can be related with the low incidence of infestation in oysters from the Las Marites, whose salinity values ranged underneath 30 psu, whereas in La Restinga these values ranged from 38 to 45psu.

Bonilla & Okuda (3) reported salinity over 40psu, but Palazón-Fernandez et al. (10), recorded salinity values between 30 and 31 psu, in this study the values are underneath 30psu. Additionally, Palazón-Fernandez et al. (10), recorded a greater primary productivity than the reported in others studies (1, 2). These changes would be due by the enrichment the water lagoon by the water spilling served towards lagoon, from the colapsed treatment plant, and the waters are being spilled without to have completed the purification process and in other cases, without to have at least completed the first step of the process. It could explain the low polychaete species richness and the low incidence of *Polydora* on the oysters. Finally, some authors consider that the infestation incidence would be controlled by several factors, including the temperature, salinity, intertidal rhythm and oysters density (9, 11). This constitutes the first study about infestation of *Polydora* specie on *C. rhizophora* in the Venezuelan coasts.

## About *Polydora* sp.

*Polydora* sp. is very similar to *P. websteri* Hartman 1943, but it differs from this in some aspects, *P. websteri* has notochetae on the fifth chaetiger, and the branchiae invariably begins in seventh and pigidium is slightly less cup-shape, whereas in our specimens no has notochetae in the fifth chaetiger and the branchiae are begins in the eighth. In agreement with some authors, *P. websteri* is restricted to subtropical and temperate waters, therefore the records of *P. websteri* for the South Caribbean are erroneous and possibly it is a new specie.



*Polydora* sp. a) Specialized chaeta from the fifth chaetiger b) hooded hook from segments of media region.

Table 1.- Summary about frequency size distribution by commercial category and infestation levels on *C. rhizophorae* from La Restinga lagoon.

Size range (mm)	n	0	%	I	%	II	%	III	%
15-60mm*	154	55	35.7	57	37.0	34	22.1	8	5.2
61-90mm	21	7	33.3	4	19.1	8	38.1	2	9.5
Total	175	62	35.4	61	34.9	42	24.0	10	5.7

\* Non commercial size

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*Polydora* sp. mud blisters distribution on inner surface of *C. rhizophora* valves

## MORPHOLOGY AND CHARACTERISTICS OF MUD-BLISTER.

