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# OCCURRENCE AND SITE SPECIFICITY OF AN ISOPOD *ANILOCRA LATICAUDA* H. MILNE EDWARDS, 1840 (ISOPODA, CYMOTHOIDAE) PARASITIC ON THE GRUNT, *ORTHOPRISTIS RUBER* (CUVIER) IN EASTERN VENEZUELA

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RESUME

L'analyse de la frequence de presence *d' Anilocra laticauda* H. Milne Edwards (fam. Cymothoidae) en 1850 *Orthopristis ruber* indique que la prevalence est de 19.7% et l'intensite moyenne est de 1.44. Le parasite n'est pas specifique vis-a-vis de l'hOte, mais presente une forte specificite vis-a-vis de sa localisation. On le trouve surtout (88%) sous les yeux et aussi (11%) dans la bouche. L'etude montre que le parasite produit des blessures sur la peau de l'hOte infecte au point d'attachement. Il y a du saignement autour de l'oeil des quelques hOtes, qui peut etre dfl aux pinces pointues du parasite.

## INTRODUCTION

*Anilocra laticauda* H. Milne Edwards, 1840 (family Cymothoidae) is found commonly on the body surface and occasionally inside the mouth of the grunt, *Orthopristis ruber* (Cuvier) (Pisces, Haemulidae) in the eastern region of Venezuela; the grunt is locally known as Corocoro. *Anilocra* is an ectoparasite and found mostly on the lower part of the eyes of its host. Much of the literature available relates to the occurrence of this parasite on different fish species (see Bowman & Diaz, 1957; Trilles, 1964; Bowman & Mariscal, 1968; Menzies & Glynn, 1968). In the present paper a quantitative analysis of the occurrence of *Anilocra laticauda* on *Orthopristis ruber* is given to determine the intensity of prevalence, site specificity and pathological effect on the host.

## MATERIALS AND METHODS

A total of 1850 grunts was examined irregularly from 1984 to mid-1988. About 80% of the fish came from commercial trawl fishing north of Margarita Island, Venezuela, at a depth not more than 40 m. The smaller portion was caught by beach seining in the Gulf of Cariaco. The length of the fish from the beach seining did not exceed 155 mm, while the larger fish were from the commercial trawl catches.

The fish were examined fresh from the seining and lightly preserved in ice from the commercial trawl. The fork-length and sex of each fish was recorded. The body surface, the fins, branchial chambers and mouth of each fish were examined. The number of *Anilocra* and the position of each was recorded. Some live parasites were brought to the laboratory with the fish and kept alive in an aquarium in sea water. Even after the death of fish, the cymothoid can be kept alive in seawater or on moist dead fish in the refrigerator for as long as five days.

## RESULTS

Occurrence. — Only 365 grunts of the 1850 examined (19.7%) were infected with *Anilocra laticauda*. A total of 526 specimens of the cymothoids were collected from infected fish; of these 311 came from the 203 female fish ( 20.3%) and 215 from 162 male fish (19%). The size of the infected fish varied between 102 and 248 mm. The intensity of infection tended to increase in the larger fish. The mean number of parasites per infected fish was 1.5 for females and 1.3 for males. The frequency of infection ranged from 0 to 3 parasites; 80.3 % of the fish had no parasites, 11.7% carried one, 7.4% had 2, and only 0.6% had 3 parasites.

Site preference. — A total of 464 parasites (88%) were located just below the eyes of the fish host: 147 were found below the right eye, 89 below the left (fig. 1), and the remaining below both eyes. Only 59 parasites (11%) were collected from the mouth, either from the tongue or from the roof of the mouth, while 4 fish had 2 parasites, one on the roof and one on the tongue, almost blocking the passage of any food material towards the pharyngeal opening.

Locomotion of *Anilocra*. — A live *Anilocra* can easily be removed from the body surface of its host. We have tried to observe the locomotion of the parasite on its host.

Ten parasites from five hosts were removed from their original position on the host and placed in the caudal region, or on the dorsal surface of the same or of a new host of the same species. Invariably the parasites crawled towards the head region, provided the surface on the host be moist. It may be assumed from this that the parasite may settle on any part of the body of its host and slowly move towards its preferred position, i.e: below the eyes. The occurrence of the parasite in the mouth may be accidental.

*Anilocra* moves on the surface of the fish with the help of its peraeopods. The 7th peraeopod is the largest and its sharp terminal claw is hooked under a scale for grip and then it pushes the pleon and posterior part of peraeon forward. There is a complete synchronization of all seven peraeopods in pushing the parasite forward. This is probably the normal process of locomotion of the cymothoid. The parasite does not settle down and does not feed until it reaches its preferred sites: no wounds on the skin of the fish were observed in any position of the parasite other than below the eyes.


Fig. 1. A, *Anilocra laticauda* H. Milne Edwards, on the orbit of eye of *Orthopristis ruber;* B, exposed part of skin of *0. ruber* on removing the isopod, *A. laticauda.*

Pathology. — Damage attributed to isopods is mainly due to their attachment and feeding. The extent of injury can vary from small localized sores to an erosion of scales and epidermal layers below the eyes, resulting in bleeding of the exposed areas. Bleeding of the eye ball was observed in some of the

infected fish. The parasite probably can pierce the skin of the rim of the orbit with the sharp curved claw of the second or third peraeopod (fig. 1A).

The wound inflicted on the host is always near the mouth structures of the parasite which is apparent on removal of the parasites from the host. Fig. 1B shows the exposed wounds outside the area covered by the parasite, which may suggest that the parasite does move to find fresh blood or tissue material.

Attachment of 1 or 2 isopods in the mouth prevents the fish from swallowing any food organisms. This condition, if it prevails, may lead to emaciation of the host. Further studies on the metabolism of such fish may confirm the effect of the parasite on the host.

## DISCUSSION

*Anilocra laticauda* has been reported from at least 20 different species of fish in the Caribbean and Atlantic Ocean (see Trilles & Vala, 1975). This suggests that the species is not strictly host specific as is, e.g., *Nerocila bivittata* (Risso, 1816), *N. orbignyi* (Guerin, 1832) and *N. phaiopleura* Bleeker, 1856 (see Trilles, 1964; Morton, 1974).

*A. laticauda* occurs mostly (88.7%) below the eyes and moreover, it has demonstrated its preference by crawling actively towards that site. This shows that *A. laticauda* is highly site specific. Similarly it suggests that the cymothoid moves around on the host to find its specific site, in contrast to the opinion of Morton (1974) who stated that the cymothoid *N. phaiopleura* does not move about on its host.

The occurrence of *A. laticauda* in the mouth of its host may be accidental as no sores were found there after removal of the parasite. Cleaning symbioses are common in fish. The grunt may have the same habit and acquired the isopods accidentally while cleaning the parasite from other infected fish in its shoal.

The Cymothoidae are blood feeders as stated by Giinther (1931). This study has indicated that *A. laticauda* causes physical damage on the skin and eyes, as well as bleeding on the site of attachment which confirms the blood feeding habits of these cymothoids.

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