

Not a food source, but potential prey protection and/or an evolution driver:
Comments on “The parasitic isopod *Anilocra physodes*,
as a novel food source for the lizardfish *Synodus saurus* (Synodontidae)”^[1]

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Short Title: Prey protection and evolution, not food

Abstract in English:

This paper suggested *Synodus saurus* was cleaning *Anilocra physodes* off fishes as a novel food source. They were apparently not aware of our natural transfer of isopods publications. We interpret their data as the most common prey-predator transfers of adult parasitic isopods we have ever seen, and survival in the host as shown by mouth-dwelling *A. physodes* and wounds caused by this isopod. We also see this process as eventual potential prey protection and/or an evolution driver toward a new position in a host and/or new species.

Title in French:

Pas une source de nourriture, mais la protection potentielle de proie et / ou un conducteur d'évolution: Le parasite isopode, *Anilocra physodes*, nouvelle source de nourriture pour le poisson lézard *Synodus saurus* (synodonti- dae). Narvaez P., Barreiros J.P. & Soares M.C. 2015. *Cybium* 39: 313-314.

Abstract in French:

Narvaez et al. (2015) a suggéré *Synodus saurus* a été nettoyer *Anilocra physodes* hors de poissons comme une source de nourriture nouvelle. Ils n'étaient pas au courant de notre transfert naturel des publications sur les isopodes. Nous interprétons leurs données comme étant les transferts prédateurs-prédateurs les plus courants d'isopodes parasites adultes que nous avons jamais vus, et la survie dans l'hôte, comme le montrent les *A. physodes* et les blessures causées par cet isopode. Nous voyons également ce processus comme une éventuelle protection contre les proies et / ou un conducteur d'évolution vers une nouvelle position est un hôte et / ou une nouvelle espèce.

Key words: prey-predator transfer, prey protection, evolution

Introduction:

We enjoyed the fine note and work by Narveaz et al. (2015) but must disagree with their main premise. They appear to have not been aware of our natural transfer of isopods to different hosts publications (Williams and Bunkley-Williams, 1994, 2014; Williams et al., 2010) and our numerous experimental transfer papers (e.g., Williams et al. 1982). Thus we feel obliged to comment on their note.

Discussion:

Narveaz et al. (2015) do not specify whether their finding was parasite cleaning or our prey-predator transfer. Atlantic Lizardfish, *Synodus saurus* (Linnaeus, 1758), are not cleaners. They mainly eat fishes. Adult *Anilocra* do not naturally occur in the mouths of fishes. This is a case of prey-predator isopod transfer. Those stuck in the throat or mouth appear similar to the *Livoneca acuta* attached in the throat of a King Mackerel, *Scomberomorus cavalla* (Cuvier, 1829), (Williams and Bunkley-Williams, 1994). Narveaz et al. (2015) thought the large female isopod on the tongue would restrict feeding. In a study of jacks with *Cymothoa oestrum* on the tongue, we found the fish ate about the same amount of food, but consumed different food items of different sizes (Bunkley-Williams et al., 2007). Perhaps the reason only isopods were found in the stomach of some lizardfish was because fish materials digest more rapidly than isopods. Isopods cause prey fishes to be more easily captured. Isopods may allow lizardfish to catch more fishes, but they are not a food item for lizardfish. They are more of a hazard of attaching in lizardfish throats. We have wondered if the attachment of external isopods might prevent some predation of small fishes by making the prey appear larger. The results presented by Narveaz et al. (2015) suggest isopods of predated fishes often become attached in the mouths or throats of predators. Thus *Anilocra* spp. and other externally attached isopods may eventually benefit prey species by deterring predation. Another interesting aspect is that the *A. physoides* orients itself in the normal cymothoid position on the tongue of the host facing outward (Narveaz et al., 2015: Fig. 2) as *Cymothoa* spp. and others. Thus one could surmise that externally occurring isopods could eventually evolve into mouth-dwelling isopods through repeated prey-predator transfer.

We will be collecting *Anilocra* sp. in 3 of the Canary Islands in late March-early May 2017 and will look for this interesting association.^[5]

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ADDITIONAL FOOTNOTES:

^[1]Publication history: Ichthyological Note submitted to *Cybium* 12 March 2017, Editorial Team valerie.gaudant@upmc.fr, *Cybium* received, we had to join to be reviewed, 115.5 euros 16 March 2017, Never responded. We submitted to Publons.

^[5]Note Added 23 October 2021: We applied for a collecting permit well in advance and contacted many local scientists for assistance but were not able to obtain permissions. Observed the isopods on the fish but could not collect.