

## *Eunice norvegica* (Polychaeta: Eunicidae) in the Gill of Horse mackerel (*Trachurus trachurus*)

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### Abstract

In the study, 50 horse mackerel (*Trachurus trachurus*) were examined for parasites between February 2001 and May 2001. Only one parasite species belong to Eunicidae family was found as attached in the gill of horse mackerel. In this investigation 12 *Eunice norvegica* (Polychaeta: Eunicidae) were collected. The samples fixed and examined. In our examination it has been observed that *Eunice norvegica* samples had 30-45 segments and branchia consist of 10 filaments on their bodies and. Mean body length measured as  $33.5 \pm 7.22$  mm (18-49) mm, width was  $1.08 \pm 0.01$  mm (1.02-1.13 mm).

**Key words:** *Eunice norvegica*, horse mackerel, parasite

### INTRODUCTION

Species of class Polychaeta, Oligochaeta and Hirudinea, which are the members of phylum Annelida, damage external view of fish by eating organs and tissues of them and by sucking their blood.

The body of species belong to class Polychaeta has very various colour with segment. The numbers of these segments are different according to species and length. Body length of *Dinophilus gyrociliatus* usually is 0.1 mm and has few segments. Body length of *Nereis pelagica* is 6 cm and has 80 segments. *Glycera capitata* is 6 cm, but its body has 170 segments. *Eunice schizobranchia*, has 700 segments, is also 60 cm [6].

*Eunice norvegica* is a species of family Eunicidae of class Polychaeta [1,5,6]. Species of family Eunicidae is predator and they feed on small Crustacea, fish, other invertebrate aquatic animals and starfish [1,6]. *Eunice norvegica* is informed, being without seta and parapodia of its first two segments, existing 1-5 antennae on the dorsal of its prostomium, having a pair tentacle, being situated 7-10 filaments similar to finger on the its gills, being 12-200 mm of its length, and living 59-1098 m dept of sea [5].

In some previous studies, horse mackerels (*Trachurus trachurus*) lives Indian Ocean, Atlantic Ocean, Pacific Ocean, Mediterranean sea and the African continent and its surrounding seas were examined for external parasites [2,9,10].

This paper reports the first record of *Eunice norvegica* on the gills of horse mackerel and includes some observations on its morphology and general structure.

### MATERIAL AND METHODS

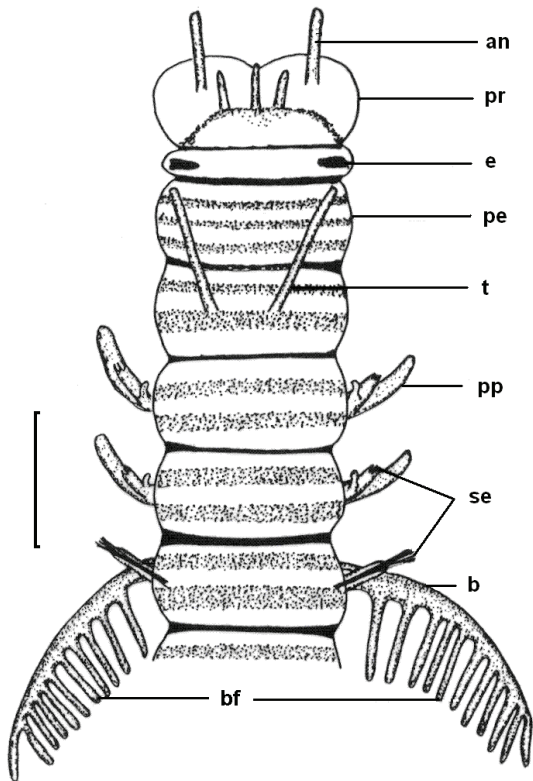
In this paper, eyes, skin, fins and mounth of 50 horse mackerel (*Trachurus trachurus*) sampled in the Mediterranean sea were examined for fish parasites using the methods of Chubb & Powell [3]. *E. norvegica* was described in the gill cavity of horse mackerel. Parasites were carefully collected in the gill of fish and placed in a plate. Later, they were washed with tap water and cleaned with 0.9% physiological water to remove tissue fragments and mucus on the parasites surface. *E. norvegica* was fixed in 5 % formalin and then transferred to lacto-phenol for becoming transparent [3-5,7,8]. Parasite was identified by the Gosner [5]. From specimens that had been become were made Drawing and picture of parasites have been obtained from transparent specimens. Drawing and pictures of parasite were made from

### RESULTS

In the present study, 12 parasites belonging to *E. norvegica*, which is a species of Eunicidae family of Polychaeta class of Annelida subphylum were identified as attached in the gill of two horse mackerels and their morphological structure were determined.

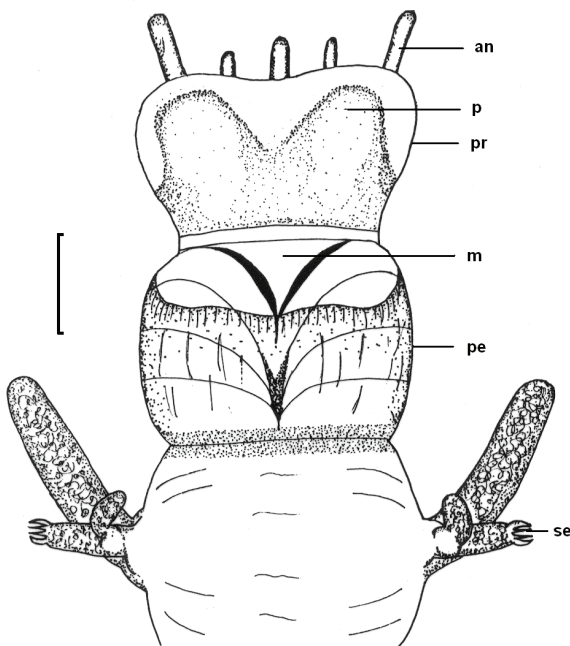
#### Morphology of *Eunice norvegica*

The mean total length of *E. norvegica* is  $33 \pm 7.22$  mm (range 18-49,  $\pm$ SE) with a mean width of  $1.08 \pm 0.001$  mm (range 1.02-1.13,  $\pm$ SE). *E. norvegica* has between 30-45 segments, according to body length. On the dorsal surface of parasite there is pigmentation consisting of segmental orange transverse bands. There are three orange bands on the first segment, and two on the other segments (Fig. 1).

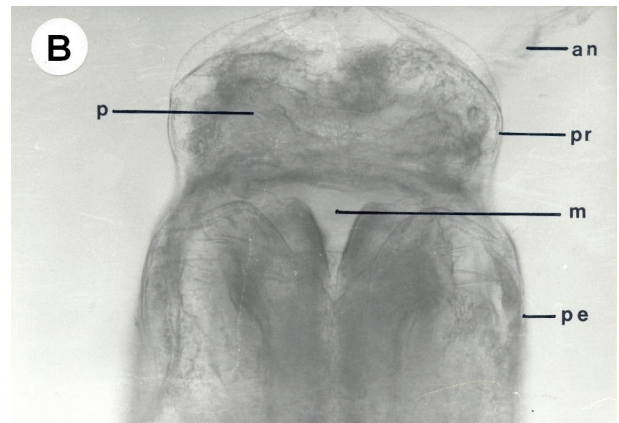
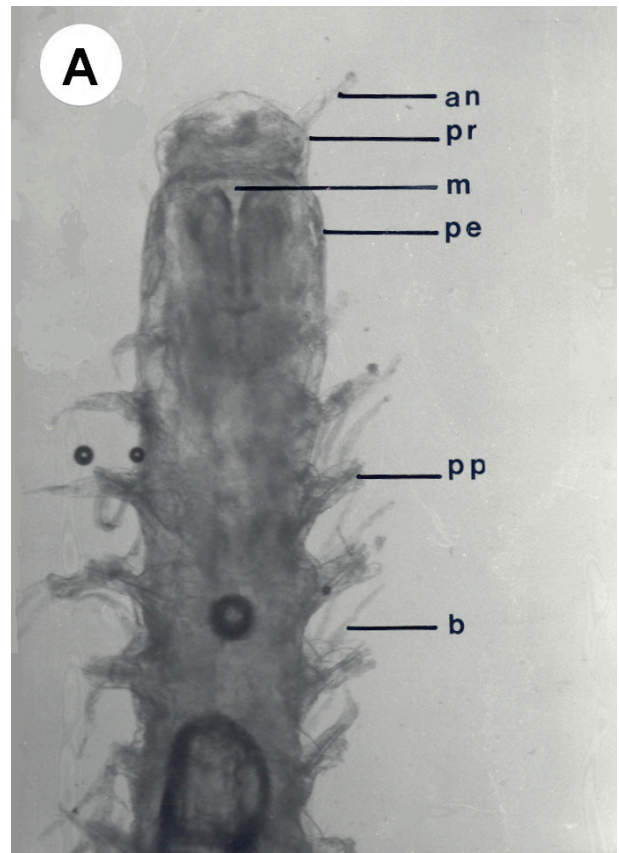


**Figure 1.** Dorsal view of anterior of *Eunice norvegica* (Scale bar=0.5 mm). **an**, antennae; **b**, branchia; **bf**, branchia flaments; **e**, eye; **pe**, peristemium; **pp**, parapodium; **pr**, prostomium; **se**, seta; **t**, tentacle.

Ventral surface of parasite (Fig. 2, 3A) is whitish in colour. The mean length of each segment is  $0.57 \pm 0.005$  mm (range 0.54-0.57,  $\pm$ SE).



**Figure 2.** Ventral view of prostomium and peristemium of *Eunice norvegica* (Scale bar=0.2 mm). **an**, antennae; **m**, mouth; **p**, palp; **pe**, peristemium; **pr**, prostomium; **se**, seta.

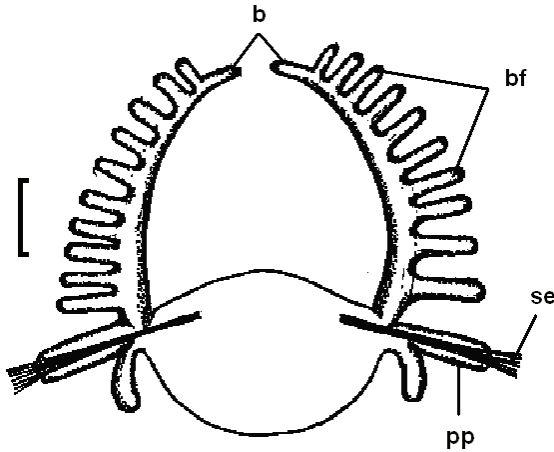


**Figure 3. A:** Ventral view of anterior of *Eunice norvegica* (X32). **B:** Wiew of prostomium and peristemium of *Eunice norvegica* (X100). **an**, anten; **b**, branchia; **m**, mouth; **p**, palp; **pe**, peristemium; **pp**, parapodium; **pr**, prostomium.

Dorsal surface of prostomium of parasite has five occipital antennae and two pairs of eyes (Fig. 3B). The mean length of antennae is  $0.46 \pm 0.1$  (range 0.44-0.56,  $\pm$ SE). A pairs of antennae is situated in anterior-lateral on a level with each other. Other three antennae are on mid of prostomium and shorter according to other two antennae (Fig.1, 2). Dark brown eyes is located on both sides on the dorso-lateral of body and on the posterior of prostomium (Fig. 1). *E. norvegica* has a pair palp on the ventral surface of prostomium (Fig. 2, 3B).

Peristemium has two segment near to prostomium (Fig. 1, 2, 3A,B). In these segments, there are no parapodia and seta, but there are a pair tentacle on the dorsal of second segment of body (Fig. 1). Mouth of the parasite is on the ventral surface

of peristomium (Fig. 2, 3A,B). There are a pair parapodia and seta on the each segments of body as from third segment. Mean lengths of a parapodia plus seta is  $0.38 \pm 0.03$  mm (range 0.36-0.40 mm,  $\pm$ SE). On the each segment as from fourth segment of parasite are situated a pair branchia with 10 comb-like filaments (Fig. 1, 3A, 4). Mean length of the branchia is  $0.84 \pm 0.01$  mm (range 0.77-0.92 mm,  $\pm$ SE).



**Figure 4.** Transversally view of branchiae of *Eunice norvegica* (Scale bar=0.2 mm). **b**, branchia; **bf**, branchia filaments; **pp**, parapodium; **se**, seta.

Twenty-two eggs are situated on the ventral surface of last two segments of parasite which beginning diameter of them are  $0.20 \pm 0.002$  mm (range 0.18-0.21,  $\pm$ SE) and whitish in colour.

## DISCUSSION

*Eunice norvegica* was found as attached in the gill of horse mackerel (*Trachurus trachurus*). The Eunicids has been reported that being predator, commensal living on the sea and feeding on the small aquatic animals [1,6]. But, in this study, *E. norvegica* has been fixed as situated in the gill of horse mackerel and live parasitically. Nutrition of species of familia Eunicidae on the Crustacea and other small animals, *E. norvegica*, which beginning a member of this family, has also been corrected that can be feed on the same small the living and even, can be attack to fish.

In this study, it has been determined that length of *E. norvegica* change according to different segment number. This results show fitness with Kaestner [6]. Although it has been reported that *E. norvegica* has 1-5 antennae on the prostomium and 7-10 filaments on the branchia on the segments of body [5], five antennae and 10 filaments on the branchia were determined on 12 parasites examined in this study.

In this study, microscopical finding on morphologic structure of *E. norvegica* showed appropriateness with studies of Barnes [1], Gosner [5] and Kaestner [6].

It can be concluded that in *E. norvegica* is determined only commensal living in the water body, but also incidental parasite in the gill of horse mackerel.

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