

## ON THREE SPECIES OF THE TREMATODE GENUS *PLAGIOPORUS* STAFFORD, 1904 FROM RED SEA FISHES

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### ABSTRACT

The genus *Plagioporus* is briefly reviewed. *P. (Caudotestis) neopercis* is re-described from *Anampses caeruleopunctatus* and *Lethrinus miniatus* and *P. (Caudotestis) lethrini* from *L. nebulosus* and *L. miniatus*. Both trematodes are re-described on the basis of certain additional morphological features as well as new host and locality records. *Plagioporus (Paraplagioporus) saoudi* n. sp., from *Acanthopagurus bifasciatus*, represents the second species in the subgenus. The new species is characterised by the length of oesophagus and prepharynx, situation of cirrus pouch and testes and extension of vitellaria.

### INTRODUCTION

Issaitschikow (1928) divided the genus *Lebouria* Nicoll, 1909 into three subgenera; *Lebouria*, *Caudotestis* and *Mediantestis*. Yamaguti (1934) raised the subgenus *Caudotestis* into generic rank with *C. nicolli* Issaitschikow, 1928 as the type species. Moreover, Yamaguti (1958) synonymised *Lebouria* with *Plagioporus* Stafford, 1904 and divided the genus *Plagioporus* into three subgenera; *Plagioporus* Stafford, 1904, *Caudotestis* Issaitschikow, 1928 and *Paraplagioporus* Yamaguti, 1939.

Yamaguti (1971) proposed a key to distinguish the three subgenera of the genus *Plagioporus* based on the excretory vesicle length, testes position and extension of vitellaria. He also arranged the trematode families on the basis of life history information and accordingly, the genus *Plagioporus* has been placed under the family Opcoelidae Ozaki, 1925 instead of Allocreadiidae Stossich, 1903.

During the present investigation, three species belonging to the genus *Plagioporus* were collected from the Red Sea fishes. Two of these species belong to two known species of the subgenus *Caudotestis*, while the other species belong to the subgenus *Paraplagioporus* and is different from the only known species in the subgenus and accordingly described herein as a new species.

## MATERIAL AND METHODS

The identification of the fishes as well as the methods followed in the collection, fixation and staining of trematodes are described by Saoud and Ramadan (1983). Drawings are made to the scale using a camera lucida. Measurements are in millimetres, unless stated otherwise.

## DESCRIPTIONS

### 1. *Plagioporus (Caudotestis) neopercis* Yamaguti, 1938 (Fig. 1).

Description : The following description is based on six specimens collected from *Anampses caeruleopunctatus* called locally "Mallas" and *Lethrinus miniatus* called locally "Dereeny".

Body fusiform, 1.33-1.43 long and 0.41-0.49, broad at about middle, tapering toward each end. Tegument smooth. Body length to width ratio 2.92-3.24:1. Oral sucker subterminal, 0.13-0.16 in diameter. Prepharynx very short, 0.01 long. Pharynx 0.07-0.09 in diameter. Oesophagus very short, 0.01-0.02 long. Caeca terminating at level of testes and not reaching beyond them. Acetabulum 0.19-0.22 long and 0.23-0.26 wide, 0.47-0.78 from anterior extremity. Oral sucker to ventral sucker ratio 0.64-0.84:1.

Testes oval to egg-shaped, oblique, in the posterior part of the body, anterior testes 0.14-0.19 long and 0.10-0.16 wide, posterior testis 0.13-0.21 long and 0.10-0.16 wide. Cirrus pouch slender tortuous, anterior to acetabulum, 0.22-0.36 long and 0.06-0.12 broad. Vesicula seminalis tubular and twisted, 0.10-0.15 long and 0.05-0.12 wide. Pars prostatica 0.07-0.10 long, surrounded by well developed prostatic cells. Cirrus 0.03-0.05 long. Genital pore on left submedian line at beginning of intestine, 21-37  $\mu$ m in diameter.

Ovary oval, to right of median line, 0.11-0.24 long and 0.08-0.14 wide. Receptaculum seminis oval, 0.06-0.12 long and 0.05-0.10 wide, dorsal to ovary. Vitellaria extending from level of oesophagus to testes. In the forebody, they are profusely developed, and continuous across the median line on the dorsal side. Uterine coils intercecal, between acetabulum and anterior testis; metraterm running along cirrus pouch. Eggs oval, numerous, 25-32  $\mu$ m long and 16-18  $\mu$ m wide.

Excretory pore terminal and excretory vesicle tubular and reaching to ovarian level.

Discussion: The present material is similar in the main characteristics to Yamaguti's description but there are certain minor differences in the shape of testes and ovary, position of receptaculum seminis in relation to ovary and oesophagus length.

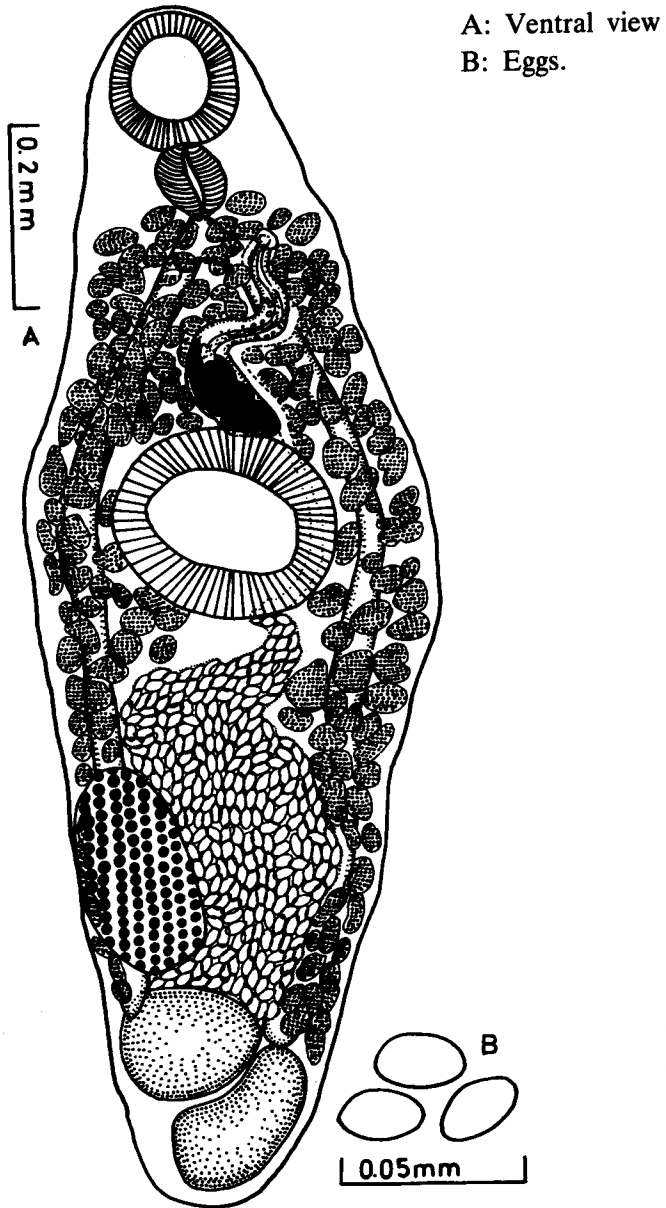


Figure 1. *Plagioporus (Caudotestis) neopercis* Yamaguti, 1938.

*Plagioporus Spp.*

The species under consideration is recorded for first time from the Red Sea and both *Anampses caeruleopunctatus* and *Lethrinus miniatus* represent new hosts for it.

In view of the above re-description of *P. (Caudotestis) neopercis*, the specific diagnosis is amended as follows:

Body length 1.33-4.48 x 0.41-0.41-1.65. Length/width ratio 2.64-3.24:1. Tegument smooth. Oral sucker 0.13-0.19 x 0.16-0.33. Ventral sucker 0.19-0.36 x 0.23-0.70. Oral sucker to ventral sucker ratio 0.49-0.84:1. Ventral sucker 0.47-0.78 from anterior extremity. Prepharynx 0.01 in length. Pharynx 0.07-0.14 x 0.08-0.14. Oesophagus 0.01-0.18 in length. Anterior testis 0.14-0.40 x 0.10-0.65. Posterior testis 0.13-0.60 x 0.10-0.55. Cirrus pouch 0.22-1.3 x 0.05-0.09, containing tubular vesicula seminalis, long pars prostatica surrounded by prostate cells and long cirrus. Genital pore at left submedian line at level of oesophagus or beginning of intestine. Ovary 0.11-0.50 x 0.08-0.40. Receptaculum seminis 0.06-0.25 x 0.05-0.12. Vitellaria extending from level of oesophagus to testes. Eggs 24-32 x 14-18  $\mu$ m.

Hosts: *Neopercis aurantiaca*, *N. muronis*, *N. multifasciata*, *Anampses caeruleopunctatus* and *Lethrinus miniatus*.

Location: Intestine.

Locality: Japan and Red Sea.

2. *Plagioporus (Caudotestis) lethrini* Nagaty, 1942 (Fig. 2).

Description: The following description is based on four specimens collected from *L. miniatus* and *L. nebulosus* called locally "Shuúra".

Body oval in shape, 1.10-1.18 long and 0.54 wide, rounded at each end. Tegument smooth. Body length to width ratio 2.04-2.19.:1. Oral sucker subterminal, 0.15-0.19 long and 0.16-0.18 wide. Prepharynx very short or absent. Pharynx 0.05-0.09 long and 0.06-0.07 wide. Oesophagus 0.07-0.23 long. Caeca terminating at level of anterior testis. Acetabulum 0.23-0.25 long and 0.23-0.33 wide, 0.32-0.43 from anterior extremity. Oral sucker to ventral sucker ratio 0.65-0.76:1.

Testes oval to round in shape, oblique, in the posterior part of body, anterior testis 0.16-0.17 long and 0.16-0.19 wide, posterior testis 0.15-0.16 long and 0.16-0.20 wide. Cirrus pouch elongate, 0.31-0.35 long and 0.10-0.14 wide. Vesicula seminalis convoluted, 0.18-0.22 long and 0.07-0.08 wide. Pars prostatica light, 0.06-0.07 long, surrounded by numerous prostate cells. Cirrus very short, 0.03-0.04 long. Genital pore at left submedian line anterior to intestinal bifurcation, 37-58  $\mu$ m in diameter.

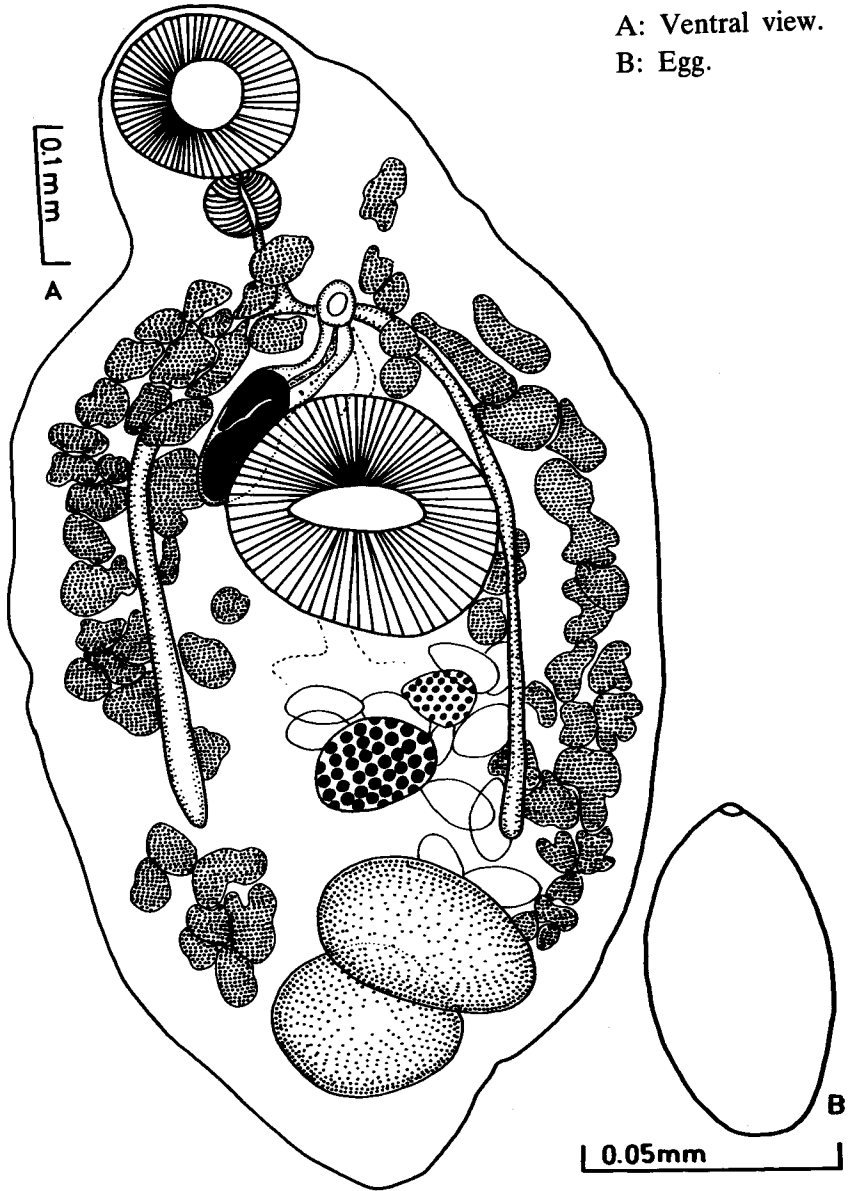


Figure 2. *Plagioporus (Caudotestis) lethrini* Nagaty, 1942.

*Plagioporus Spp.*

Ovary oval, at median line, anterior to testes, 0.08-0.13 long and 0.07-0.12 wide. Receptaculum seminis egg-shaped, 0.04-0.06 long and 0.02-0.03 wide, anterior to ovary. Vitellaria extending on both sides from level of pharynx to testes, in the fore body they may meet or not. Uterus coils intercaecal, between acetabulum and testes, metraterm directed anteriorly, dorsal to acetabulum. Eggs ovoid, 48-51  $\mu\text{m}$  long and 21-25  $\mu\text{m}$  wide, with operculum at the narrow pole.

Excretory pore terminal and excretory vesicle tubular and reaching to ovarian level.

Discussion: The present material is similar in the main characteristics to Nagaty's description but there are certain minor differences in the arrangement of vitellaria, gonads shape and measurements of body organs. Thus, the specific diagnosis is amended as follows:

Body length 0.93-1.53 x 0.54-0.62. Length/width 2.04-2.19:1 Tegument smooth. Oral sucker 0.15-0.19 x 0.16-0.24. Ventral sucker 0.23-0.28 x 0.32-0.43. Oral sucker to ventral sucker ratio 0.65-0.76:1. Ventral sucker 0.32-0.43 from anterior extremity. Prepharynx absent or very short. Pharynx 0.05-0.9 x 0.06-0.09. Oesophagus 0.07-0.23 in length. Anterior testis 0.12-0.17 x 0.16-0.19. Posterior testis 0.12-0.16 x 0.16-0.20. Cirrus pouch 0.31-0.35 x 0.10-0.14, containing convoluted vesicula seminalis, light pars prostatica, 0.06-0.07 long, surrounded by prostate cells. Cirrus short, 0.03-0.04 long. Genital pore at left submedian line anterior to intestinal bifurcation. Ovary 0.08-0.13 x 0.07-0.13, Receptaculum seminis 0.04-0.06 x 0.03-0.03. Vitellaria extending from level of pharynx to testes. Eggs 48-77 x 21-45  $\mu\text{m}$ .

Hosts: *Lethrinus nebulosus* and *L. miniatus*.

Location: Intestine.

Locality: Al-Ghardaga, Red Sea.

3. *Plagioporus (Paraplagioporus) saoudi* n. sp., \*(Fig. 3).

Description: The following description is based on two specimens collected from *Acanthopagurus bifasciatus* called locally "Rabag".

Body fusiform, 2.8-3.5 in length with maximum breadth of 0.93-1.16 at level of acetabulum. Tegument smooth. The body length to width ratio 3.0-3.2:1. Oral sucker subterminal, 0.39-0.43 long and 0.41-0.45 wide. Prepharynx 0.13-0.15 long. Pharynx 0.23-0.27 long and 0.22-0.31 wide. Oesophagus very short, bifurcating at second sixth of body. Cecae simple, terminating short of posterior extremity. Acetabulum 0.60-0.67 long and 0.69-0.73 wide, at junction of anterior with middle thirds of body.

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\*The new species is named in the honour of Dr. M.F.A. Saoud, Professor of Parasitology, Faculty of Science, Ain Shams University, for his distinguished contributions to Parasitology in Egypt.

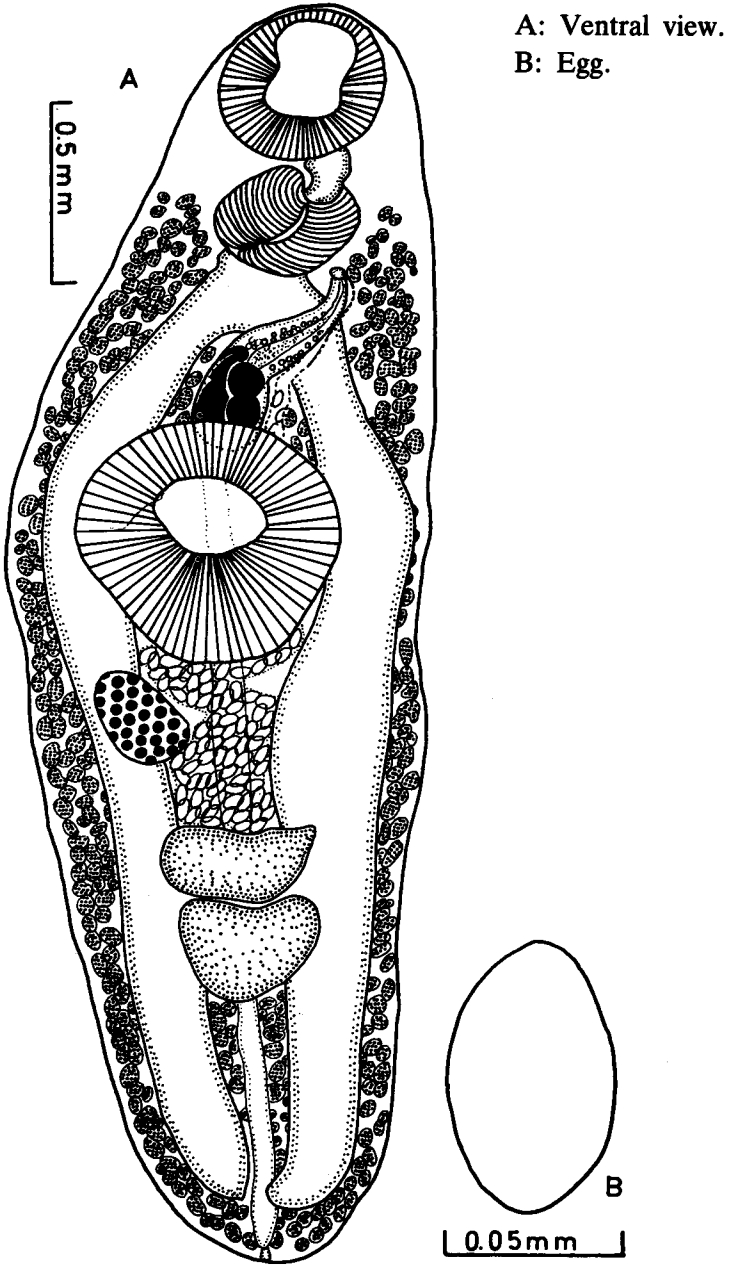


Figure 3. *Plagioporus (Paraplagioporus) saoudi* n. sp.

*Plagioporus Spp.*

Testes egg-shaped, tandem, at middle of hind body, anterior testis 0.14-0.18 long and 0.40-0.42 wide, posterior testis 0.26-0.28 long and 0.38-0.39 wide. Cirrus pouch elongate, 0.55-0.60 long and 0.14-0.20 wide, anterior to acetabulum, slightly overlapped dorsally with it. Vesicula seminalis interna elongate, saccular, 0.21-0.25 long and 0.14-0.18 wide. Pars prostatica cylindrical, 0.22-0.28 long, surrounded by prostate cells, continued into slightly narrower, eversible ductus ejaculatorius. Genital pore a little to left of median line at level of oesophagus.

Ovary oval, 0.20-0.24, anterior to the right of median line, 0.20-0.29 long and 0.10-0.18 wide. Receptaculum seminis round-shaped overlapping with ovary, 0.09-0.15 in diameter. Vitellaria follicular, fill all the spaces from pharynx to posterior extremity. Uterus forming few coils between anterior testes, ovary and acetabulum. Metraterm muscular, alongside cirrus pouch. Eggs oval in shape, thin-shelled, 71-77 um long and 40.49 um wide.

Excretory pore terminal and excretory vesicle tubular, middorsal and reaching to level of anterior end of acetabulum.

Discussion: *Plagioporus (Paraplagioporus) saoudi* n. sp. represents the second species of the subgenus. In Table (1) a comparison between *P. (Paraplagioporus) isagi* Yamaguti, 1939 and *P. (Paraplagioporus) saoudi* n. sp. is given.

Table 1  
A comparison between *P. (Paraplagioporus) isagi*  
and *P. (Paraplagioporus) saoudi* n. sp.

Characters	<i>P. (Paraplagioporus) isagi</i> Yamaguti, 1939	<i>P. (Paraplagioporus)</i> <i>saoudi</i> n.sp.
Body shape	Fusiform	Fusiform
Length	1.5-2.1	2.8-3.5
Width	0.55-0.65	0.93-1.6
Tegument	Smooth	Smooth
Length/width	3:1	3-3.02:1
Oral sucker	Subterminal 1,0.1-0.18 x 0.13-0.21	Subterminal, 0.39-0.43 x 0.41-0.45
Prepharynx	Very short	Elongate, 0.13-0.15 long



Contd. Table 1

Characters	<i>P. (Parapalgioporus) isagi</i> Yamaguti, 1939	<i>P. (Parapalgioporus)</i> <i>saoudi</i> n.sp.
Pharynx	0.08-0.13 x 0.08-0.10	0.23-0.27 x 0.22-0.31
Oesophagus	0.07-0.20 long, with outer longitudinal and inner circular muscle fibres	Very short, without distinct muscles fibres.
Acetabulum	0.23-0.35 in diameter.	0.60-0.67 x 0.69-0.73
Oral sucker/ ventral sucker	0.52:1	0.64-0.65:1
Testes	Ovoid to elliptical, obliquely tandem, 0.16-0.28 x 0.14-0.20	Egg-shaped, tandem, 0.14-0.28 x 0.38-0.42.
Cirrus pouch	Elongate, 0.40-0.75 x 0.08-0.09 left of acetabulum, with elongate saccular vesicula seminalis, cylindrical pars prostatica, surrounded by prostate cells, an eversible ductus ejaculatorius.	Elongate, 0.55-0.60 x 0.14-0.20, anterior to acetabulum posterior end overlapped dorsally with acetabulum, with elongate saccular vesicula seminalis, cylindrical pars prostatica surrounded by prostate cells and terminate by eversible ductus ejaculatorius.
Genital pore	Left of median line at level of oesophagus.	Left of median line at level of oesophagus.
Ovary	Opposite or less anterior to anterior testis, 0.12-0.16 x 0.09-0.12	Anterior to anterior testis by 0.20-0.24, and measures 0.20-0.29x0.10-0.13
Receptaculum seminis	Retort-shaped, 0.08 x 0.11 anterior or overlapping with ovary	Round-shaped, 0.09-0.15 in diameter, overlapping with ovary.

*Plagioporus Spp.*

Contd. Table 1

Characters	<i>P. (Paraplagioporus) isagi</i> Yamaguti, 1939	<i>P. (Paraplagioporus)</i> <i>saoudi</i> n.sp.
Vitellaria.	Extending from posterior part of oesophagus to posterior extremity.	Extending from pharynx to posterior extremity.
Eggs	57-60 x 36-39 um	71-77 x 40-49 um.
Excretory	Reaching to level of anterior end of acetabulum.	Reaching to level of anterior end of acetabulum.
Host	<i>Parapristipoma trilineatum</i>	<i>Acanthopagurus bifasciatus</i> .
Locality	Inland Sea, Japan.	Al-Ghardaga, Red Sea.

It is clear that the new species differs from *P. (Paraplagioporus) isagi* in the following points: Prepharynx much longer, oesophagus much smaller and without muscles, the position of the cirrus pouch, the position of the testes, the extension of the vitellaria and measurements of various body organs.

The present author believes that all these differences are sufficient to designate *Plagioporus (Paraplagioporus) saoudi* as a new species.

Host: *Acanthopagurus bifasciatus*.

Location: Intestine

Locality: Al-Ghardaga, Red Sea.

Type: Deposited in the Helminthological Collection, Department of Zoology, Faculty of Science Ain Shams University, Nos: 344 and 345.

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ثلاثة أنواع من التريماتودا  
التابعة لجنس بلاجيوبورس  
من أسماك البحر الأحمر  
مصطفى محمود رمضان

قام المؤلف بتقديم عرض تاريخي وتحليلي لجنس بلاجيوبورس ، وتم اعادة وصف كل من بلاجيوبورس ( كوداتستس ) نيوبيرسيز من انامبسس سيريليوبنكتاتس وليثرينس مينياتس ، وبلاجيوبورس ( كوداتستس ) ليثريني من ليثرينس نبيولوزس وليثرينس مينياتس . وقد سجل المؤلف هذين النوعين من ديدان التريماتودا لأول مرة في نوعين من أسماك البحر الأحمر .

كم وصف المؤلف نوعاً جديداً من نفس الجنس هو بلاجيوبورس ( بارا بلاجيوبورس ) سعودي من سمكة اكانتوباجورس بايفاسياتس ، ويعتبر النوع الجديد ثاني الأنواع التي وصفت من تحت جنس بارا بلاجيوبورس ، ويتميز النوع الجديد باختلافات واضحة في كل من المرء وقبل البلعوم ، وموقع الجيب التناسلي والخصى ، وكذلك امتداد الغدد المحية .