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A NEW SPECIES OF THE GENUS *TERGESTINA* NAGATY & ABDEL-AAL, 1964 AND REDESCRIPTION OF *MONORCHIS MONORCHIS* (STOSSICH, 1890) LOOSS, 1902, FROM MARINE FISHES IN LYBIA

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ABSTRACT

In the present work *Tergestina nagatyi* n. sp. of the genus *Tergestina* Nagaty and Abdel-Aal, 1964, was recorded and described for the first time from the marine fish *Trachurus mediterraneus* (locally called "Sauro") caught from the Gulf of Sirt in the Mediterranean coast of Libya. *Tergestina nagatyi* n. sp. differs from the known members of the genus in having 9 muscular lobes around the oral sucker, separate testes, a short oesophagus, a moderately lighter oral sucker ratio. The present work represents also a new host record and locality for *Monorchis monorchis*. It adds more details of the external features, internal organs and measurements of this species.

INTRODUCTION

The genus *Tergestina* was established by Nagaty and Abdel-Aal (1964) with *T. plataxi* from *Platax* sp from the Red Sea in Egypt, as the type species. Later, Yamaguti (1971) outlined the generic diagnosis of the genus *Tergestina* and listed only the two species *T. plataxi* and *T. abuserai* of Nagaty and Abdel-Aal (1964). No more species belonging to the genus *Tergestina* were so far added.

On the other hand, the genus *Monorchis* (*Monorchidae*) was established by Looss in 1902, with *M. monorchis*, from *Cantharus orbicularis* and *Oblata melanura* fishes in Triest, as the type species.

In the same year, Looss described another species, *Monorchis parvus* from *Sargus annularis* and *S. rondeletti* from Triest. Manter (1940) described *Monorchis latus* from *Anisotremus virginicus* and *Haemulon plumieri* from Florida. Issa (1963) added a new species, *Monorchis hermani*, from *Chrysophrys aurata* of the Red Sea in Egypt. Prevot and Bartoli (1967) described the metacercaria of *Monorchis monorchis* from *Antedon mediterranea* (Echinoderm) in the Mediterranean. In 1971, Yamaguti listed *Monorchis monorchis* (Stossich, 1890) Looss, 1902 from *Blennius gattorugine*, *B. pavo*, *Diplodus sargus*, *Spicara alcedo*, *Chrysophrys aurata* and *C. lineata* in the Mediterranean. He also reported the same species from *Smaris chryselis* in the Black Sea. No other species belonging to the genus *Monorchis* were recorded.

The aim of the present work is, therefore, to extend our knowledge of the morphological and morphometrical analysis, prevalence and distribution of the above two genera in marine fishes from the Mediterranean Sea in Libya.

MATERIAL AND METHODS

Several adult fishes of *Trachurus mediterraneus* (locally called "Sauro") were caught from the Gulf of Sirt in the Mediterranean coast of Libya. They were immediately examined, for helminth parasites inhabiting the intestine. Trematode parasites were relaxed and fixed in hot 70% alcohol. The parasites were then stained using aceto-alum carmine. Drawings were made to the scale using a camera lucida. Measurements are in millimeters, unless otherwise stated. The identification of fishes as well as methods followed in collection, fixation, staining, clearing and mounting were carried out according to the usual techniques.

RESULTS AND DISCUSSION

1- *Tergestina nagatyi* n. sp. (Fig. 1A&B)

Host: *Trachurus mediterraneus*.

Site: Intestine.

Locality: Gulf of Sirt in Libya.

Types: Holotype and Paratype deposited in the Department of Zoology, Faculty of Science, Cairo University, Fayoum Branch.

The following description is based on seven specimens :

The worms are elongate and cylindrical. They are 1.26-1.33 long and 0.36-0.43 wide. The widest point of the body occurs at the level of the ventral sucker (Fig. 1A,a). The body surface is smooth; but the oral sucker is surrounded by a ventrally interrupted "ring" of 9 equal muscular projections (lobes). Each lobe is roughly conical and muscular with a terminal spine-like structure (Fig. 1A,c). The musculature is similar to that of the oral sucker; but although the bases of the 9 lobes are fused and lie close to this sucker, they are not continuous with it. A narrow longitudinal groove is visible in the longitudinal axis of each lobe. Each lobe measures 0.088-0.069 long and 0.028-0.031 wide. A small tegumental papilla is sometimes visible ventral to the ring of lobes in the live worm. In addition, 6 dome-shaped muscular flanges of "collarettes" of histologically similar construction lie along the body surface on either side of the pharynx and/or the oral sucker (Fig. 1A,a). Each flange is provided with a terminal spine-like structure and measures 0.033-0.036 long and 0.022-0.024 wide (Fig. 1A,b).

The oral sucker is slightly elongate with a slit-like terminal or subterminal opening and measures 0.019-0.022 long and 0.11-0.13 wide. The ventral sucker is more or less globular or spherical and lies at the end of the anterior half of the body and measures 0.20-0.25 long and 0.18-0.20 wide. The ratio of the oral sucker/ventral sucker is about 1:1.1-1.3. There is no prepharynx. The oral sucker leads directly into a large, elongate pharynx. The pharynx measures 0.21-0.23 long and 0.09-0.12 wide. It leads to a short narrow oesophagus, which bifurcates just anterior to the cirrus pouch. The oesophagus is short and measures 0.036-

0.039 in length. The two narrow caeca extend back, almost to the posterior extremity of the body, before terminating blindly.

The two testes are equal, irregularly spherical to oval and lie almost in tandem to obliquely in the posterior half of the hindbody. The union of the vasa efferentia can not be traced. The anterior testis measures 0.10-0.12 in diameter. The posterior testis measures 0.11-0.12 in diameter. The cirrus sac is clearly divided into two distinct parts (Fig. 1A,d). The proximal part is an elongate L-shaped external seminal vesicle which normally reaches the hindbody; it measures 0.28-0.30 in length. The distal part is globular and contains the pars prostatica, internal seminal vesicle and ejaculatory duct. The pars prostatica is small, measuring 0.036-0.037 long and 0.018-0.019 wide, vesicular and possesses an indistinct lining. There are also gland cells in the distal region of the cirrus sac (Fig. 1A,d), which may also be prostatic. The internal seminal vesicle is saccular in shape and measures 0.081-0.084 long and 0.054-0.056 wide. The ejaculatory duct is well developed, large, wide and deeply diverticulate. In some fixed specimens, the ejaculatory duct is extruded through the genital pore to form a large, complex and deeply lobed cirrus. The ejaculatory duct opens into the base of a deep genital atrium, which itself opens via the genital pore ventrally and anterior to the ventral sucker.

The ovary is oval in shape, lies antero-laterally to the anterior testis and measures 0.13-0.14 long and 0.10-0.11 wide. The receptaculum seminis is oval in shape and partly overlapped by the eggs. It lies in the right side of the ovary and measures 0.052-0.054 long and 0.045-0.048 wide. The vitelline follicles are small, occupying the lateral field, from a level posterior to the external seminal vesicle to the posterior end of the anterior testis. The uterus is coiled and extends posteriorly from the level of the posterior border of the posterior testis and anteriorly to the middle of the acetabulum. The eggs (Fig. 1A,e) are small, oval and measure 16-18 μ long and 10-12 μ wide.

The terminal excretory pore leads into a Y-shaped vesicle traced as far forward as the posterior testis before being obliterated by the eggs. In live specimens, two narrow muscular excretory arms extend from the anterior hindbody as far forwards in the forebody as the level of the pharynx.

Tergestina nagaty n. sp. differs from the only two known species of the genus in having 9 muscular lobes around the oral sucker instead of 12-14 in *T. plataxi* and 6 in *T. abuserai*. The new species is closely related to *T. plataxi*, but differs in having a short oesophagus (Table 1) instead of a moderately long one. The two testes in *T. nagaty* n. sp. are small, separated, tandem in position and lie at 0.13-0.15 from the posterior extremity, but in *T. plataxi*, the two testes are larger, oblique and close together with the inner borders overlapping, near the posterior extremity. The oral sucker and pharynx in *T. nagaty* n. sp. is 1:1.1-1.3, but in *T. plataxi* is 1:2.5.

The present author is of the opinion that all the above differences are sufficient to designate *T. nagaty* as a new species.

(Table 1)
 Dimensions of the two known species of the
 genus *Tergestina* and *T. nagatyi* n. sp. reported in the present work

Authority	Nagaty and Abdel-Aal (1964)	Nagaty and Abdel-Aal (1964)	Present work (2000)
Name used:	<i>Tergestina plataxi</i>	<i>T. abuserai</i>	<i>T. nagatyi</i> n. sp.
Specimens:	Two	Single	Seven
Hosts:	<i>Platax</i> sp.	<i>Platax</i> sp.	<i>Trachurus mediterraneus</i>
Locality:	Red Sea – Egypt	Red Sea – Egypt	Mediterranean Sea – Libya
Length:	1.08-1.23	0.40	1.26-1.33
Breadth:	0.30-0.39	0.18	0.36-0.43
Oral sucker:	0.09×0.11-0.12	0.08×0.09	0.19-0.22×0.11-0.13
Lobes:	12-14	6	9 (0.088×0.028)
Flanges:	5-6	6	6 (0.033×0.022)
Ventral sucker:	0.27×6.26-0.27	0.27×0.23	0.20-0.25×0.18-0.20
Suckers ratio:	1 : 2.5	1 : 2.5	1 : 1.1-1.3
Prepharynx:	Absent	Absent	Absent
Pharynx	0.09-0.11×0.06	0.10-0.09	0.21-0.23×0.09-0.12
Oesophagus:	0.11-0.18 in length	0.21 in length	0.036-0.039 in length
Cirrus sac:	0.12-0.14 × 0.11	0.14×0.11	0.16-0.17×0.09-0.10
External seminal vesicle:	L-shaped	Tubular	L-shaped, 0.28-0.30 in length
Anterior testis	0.17×0.11	0.18×0.12	0.10-0.12 diameter
Posterior testis:	0.17×0.12	0.20×0.12	0.11-0.12 diameter
Ovary:	0.12 × 0.14	0.16×0.6	0.13-0.14×0.10-0.11
Receptaculum semenis:	0.09×0.11	0.07×0.06	0.52-0.54×0.045-0.048
Eggs:	20×10μ	16×12μ	16-18×10-12μ

2- *Monorchis monorchis* (Stossich, 1890) Looss, 1902 (Fig. 2A&B)

Host: *Trachurus mediterraneus*.0

Site: Intestines.

Locality: Gulf of Sirt in Libya.

The following description is based on six specimens :

The body is large, oval in shape, measuring 1.18-1.28 in length and 0.67-0.70 in width. Tegument spinose, spines extend to posterior extremity, each spine measures 11-14 μ m in length. The oral sucker is subterminal and rounded, measuring 0.16-0.18 long and 0.17-0.19 wide. The prepharynx is short and measures 0.022-0.025 in length. The pharynx is strongly muscular and spherical, measuring 0.049-0.052 long and 0.067-0.068 wide. The oesophagus is short, measuring 0.22-0.024 in length. The caeca are elongate, ending near the posterior extremity, each measures 0.83-0.89 long and 0.076-0.078 in maximum width. The ventral sucker is rounded, smaller than the oral sucker and measures 0.085-0.087 long and 0.081-0.082 wide. The ratio of the oral sucker/ventral sucker is 2.06-2.22:1.

The single testis is oval-shaped and lies in the posterior half of the body to the left side, measuring 0.35-0.37 long and 0.23-0.25 wide. The cirrus pouch has a sigmoid shape and measures 0.49-0.51 in length and 0.14-0.16 in maximum width, lying middorsally between the intestinal furca and the testis. The cirrus pouch contains the internal seminal vesicle, the pars prostatica, the ejaculatory duct and the cirrus. The remaining space in the cirrus pouch is filled with gland cells. The internal seminal vesicle is spherical, measuring 0.12-0.14 in diameter. The pars prostatica is tubular in shape. The ejaculatory duct is well developed and muscular. The genital atrium has variable shape but usually large. The cirrus is usually extruded through the genital pore.

The ovary is deeply branched, situated on the left side of the body, immediately anterior to the testis and is 0.22-0.25 long and 0.14-0.16 wide. Vitellaria consist of two symmetrical groups of small lobed follicles occupying most of the anterior third of the body. Each group includes 24-27 follicles and each follicle measures 0.026-0.035 in diameter. Two longitudinal vitelline ducts extend posteriorly one from each vitelline group and open in the small ootype which lies at the posterior margin of the cirrus pouch. The metraterm is usually wide and full with eggs. Eggs (Fig. 2A,b) are numerous and each measures 17-23 \times 8-10 μ m in size. The excretory vesicle is V-shaped with a terminal excretory pore.

The present material is similar to *M. monorchis* (Stossich, 1890) Looss, 1902 in its main features, although certain morphological infra-specific differences are observed. The report of *M. monorchis* from *Trachurus mediterraneus* represents a new host and a new locality records for this parasite in the Gulf of Sirt in Libya.

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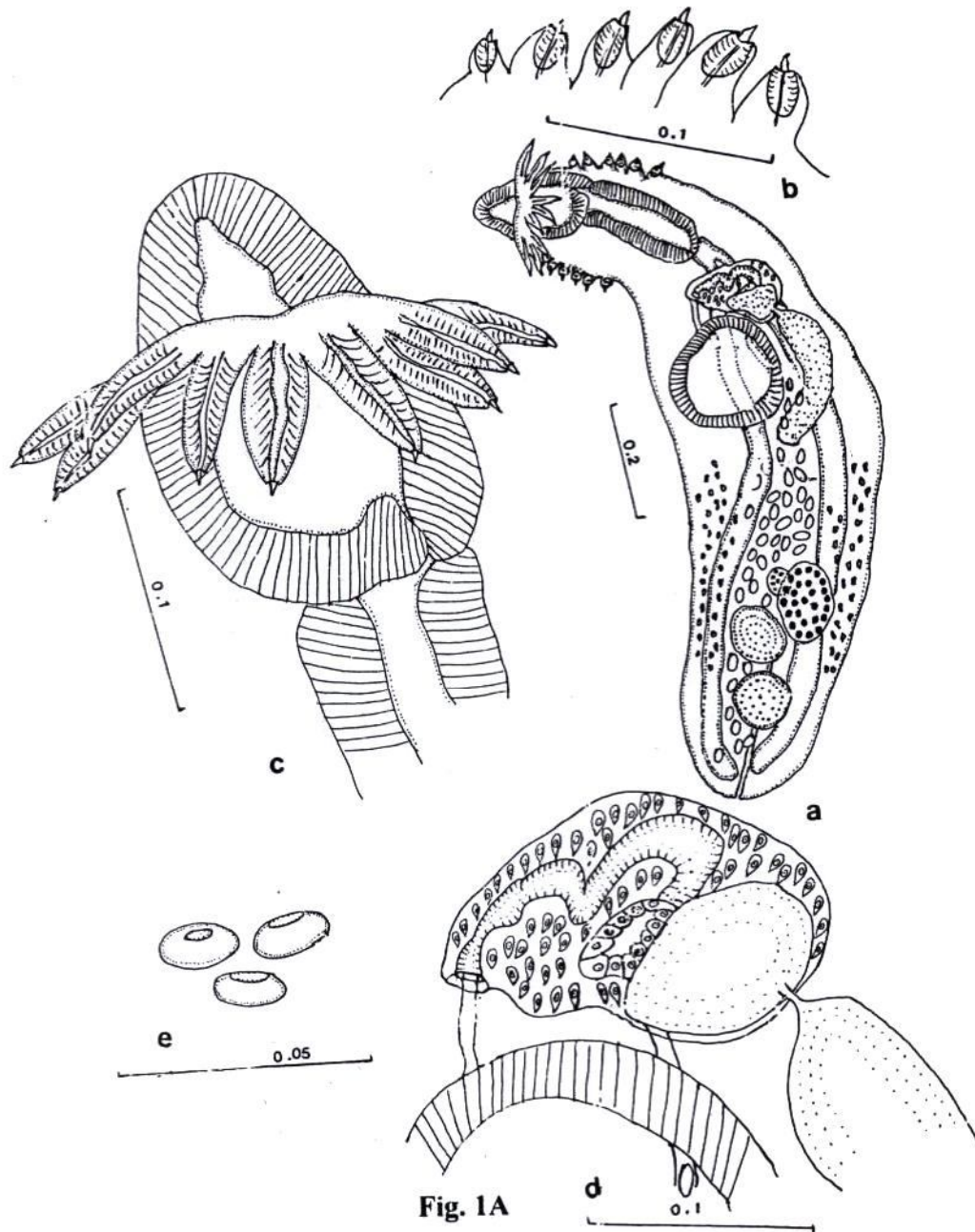


Fig. 1A

Camera lucida drawing showing:

- a- Ventral view of *Tergestina nagaty* n. sp.
- b- Flanges with terminal spine-like structures.
- c- Oral sucker surrounded by 9 muscular lobes.
- d- Cirrus sac of *T. nagaty* n. sp.
- e- Eggs of *T. nagaty* n. sp.

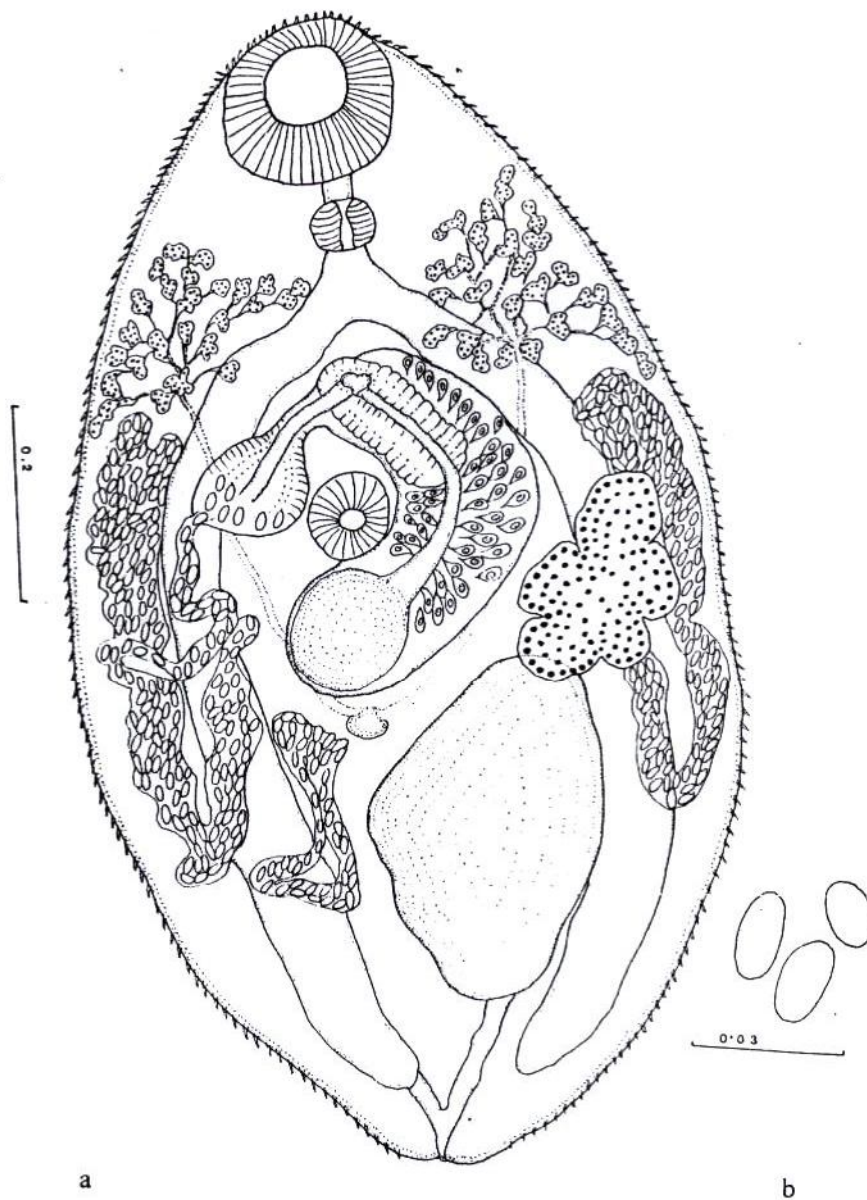


Fig. 2A

Camera lucida drawings showing:

a-Ventral view of *Monorchis monorchis*.

b-Eggs of *M. monorchis*.



Fig. 1B

Photo showing the ventral view of *Tergestina nagatyi* n. sp.



Fig. 2B

Photo showing the ventral view of *Monorchis monorchis*

**نوع جديد من جنس ترجستينا نجاتي وعبدالعال، ١٩٦٤
وإعادة وصف مونوركس مونوركس من الأسماك البحرية في ليبيا**

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تناول هذا البحث رصد ووصف نوع جديد من جنس *ترجستينا*، *نجاتي* وعبدالعال، ١٩٦٤ من الأسماك البحرية *تراكيورس ميدتيرينيس* الذي تم صيدها من خليج سرت المطل على البحر المتوسط في ليبيا. النوع الجديد، *ترجستينا نجاتي*، يختلف عن النوعين المعروفين من الجنس باحتوائه على ٩ فصوص عضلية حول الممص الفمي وابتعاد الخصيتين. إحداهما عن الأخرى مع قصر في طول المرئ وكبر في حجم الممص الفمي بالإضافة إلى اختلاف في النسبة بين الممص الفمي والممص البطني. كما يعتبر البحث الحالي إضافة لعائل ومكان جديدين لنوع *مونوركس مونوركس* وأيضاً يضيف تفاصيل جديدة في الشكل الخارجي والأعضاء الداخلية والقياسات لهذا النوع.

المجلة المصرية لعلم الحيوان

٣٥

ديسمبر ٢٠٠٠

دورية علمية تصدر عن جمعية علم الحيوان بجمهورية مصر العربية