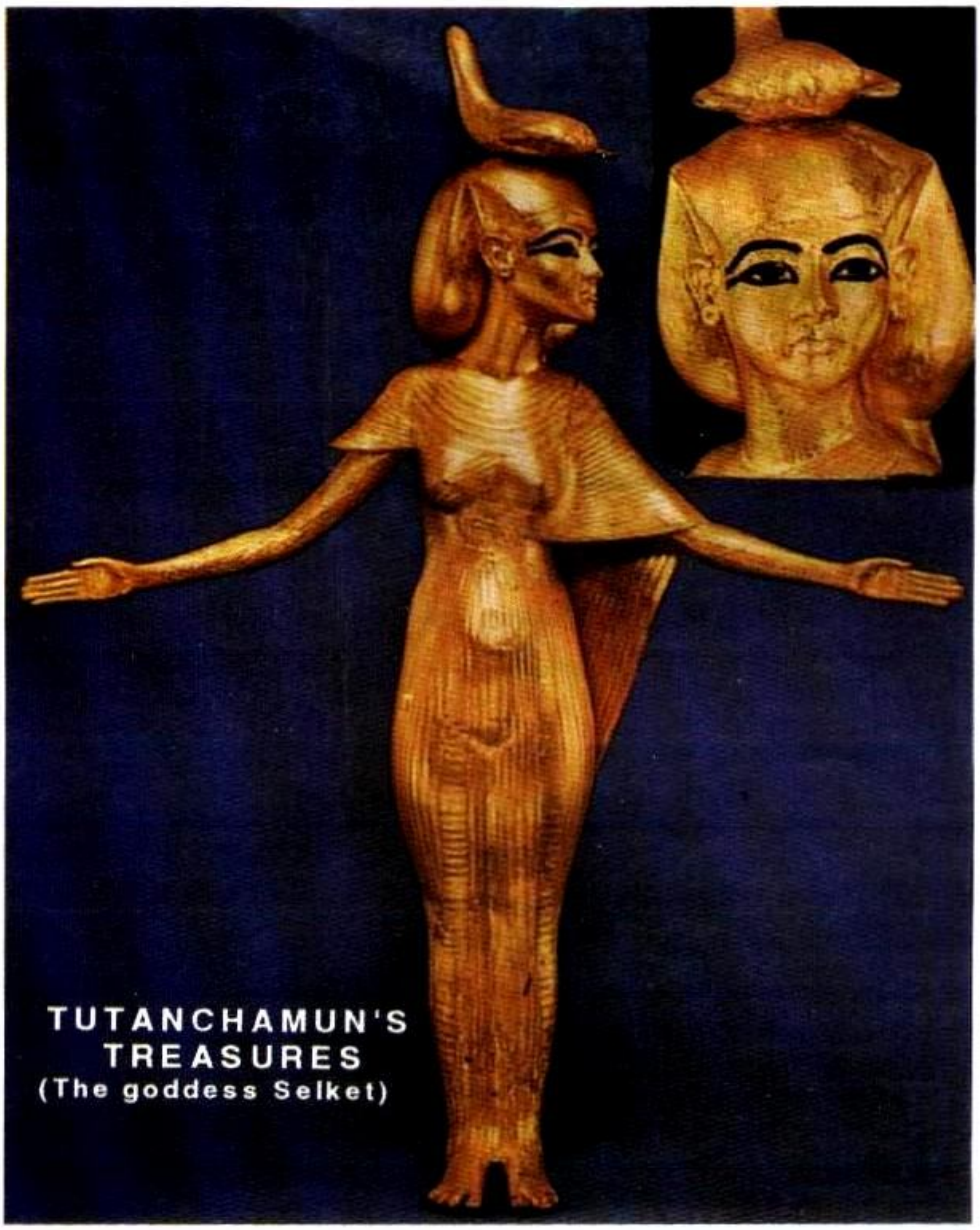
ISSN: 1110 - 0583

JOURNAL OF THE EGYPTIAN SOCIETY OF PARASITOLOGY

Volume 29. NO. 3 December, 1999



THE EGYPTIAN SOCIETY OF PARASITOLOGY
1. Ozoris Street, Garden City, Cairo, Egypt.

Journal of the Egyptian Society of Parasitology, Vol. 29, No.3, December, 1999

J. Egypt. Soc. Parasitol., 29 (3), 1999: 831-840

A NEW HOST AND LOCALITY RECORDS OF THE TWO TREMATODES *GYMNOTERGESTIA CHAETODIPTERI* AND *OPECHONA SARDINELLAE* DESCRIBED BY NAHHAS AND CABLE IN 1964, WITH REVIEW OF THE TWO GENERA

By

DAYHOUM A. M. L. AL-BASSEL

Department of Zoology, Faculty of Science, Fayoum Branch of Cairo University, Fayoum, Egypt.

ABSTRACT

The two trematode genera *Gymnotergestia* Nahhas and Cable, 1964 and *Opechona* Looss, 1907 were reviewed and discussed. *Gymnotergestia chaetodipteri* Nahhas and Cable, 1964 and *Opechona sardinellae* Nahhas and Cable, 1964 were redescribed from *Serranus scriba* and *Labrus bergylata* respectively from Libya. This represents a new host record and new locality. A comparison between the original description and the present work was presented.

INTRODUCTION

The overall Mediterranean picture is one of a delicately poised balance between natural breakdown processes and a progressive increase in industrial pollution. The increase in pollution will need active monitoring and control if the past history and present environment of the Mediterranean is to be conserved for future generations of mankind (Meadows, 1992). The Mediterranean is a semi-enclosed sea and polluted with several pollutants. In polluted sea water, oxygen depletion, stress-induced mucus and lamellar lesions which support parasitic infestation on fishes, compounding an already stressful

state (Overstreet and Howse, 1977). Adult trematodes probably minimally harm fishes in natural habitats, but in enclosed ponds where fishes are trapped with little water and high densities of snails, the harzards increases. By experimentally infecting juvenile *Mugil cephalus* with large number of *Dicrogaster fastigatus* (Digenetic trematodes) one could kill the hosts (Paperna and Overstreet, 1981). The genus *Gymnotergestia* was estblished by Nahhas and Cable, 1964 with *G. chaetodipteri* from *Chaetodipterus faber* from Curacao and Jamaica as the type species. The genus *Opechona* was established by Looss, 1907 with *O. bacillaris* (Molin, 1859) Looss, 1907 from *Centrolophus pompilius* from Batavii as the type species.

It is hoped that the present investigation will help in extending the knowledge about the distribution of the above two genera from marine fishes in the southern area of the Mediterranean Sea. During the present investigation, trematodes belonging to the above two genera were collected from fishes in Libya.

MATERIAL AND METHODS

Several adult fishes of *Serranus scriba* and *Labrus bergylata* locally called Bacroon and Khodaer respectively, were caught from the Libian coastal waters near Misurata in Liyba. They were examined for helminth parasites inhabiting the intestine as soon as possible. Trematode parasites were first relaxed, then fixed in hot 70% alcohol or 5% formalin. The parasites were then stained using aceto-alum carmine stain. Drawings were made to the scale using a Camera Lucida. Measurements are in millimetres, unless otherwise stated. The identification of fishes as well as methods followed in collection, fixation, staining, clearing and mounting were carried out by the usual way.

RESULTS AND DISCUSSION

1) *Gymnotergestia chaetodipteri* Nahhas and Cable, 1964. (Fig. 1):

The description is based on ten specimens: Body slender aspinose, tapering posteriorly, 1.92-2.84 long and 0.26-0.42 in maximum width. Oral sucker 0.13-0.24 long and 0.15-0.17 wide. Prepharynx absent. Pharynx well

developed 0.10-0.20 long and 0.053-0.13 wide. Oesophagus very short. Ventral sucker 0.13-0.15 long and 0.15-0.18 wide. Suckers ratio 0.86-1.3:1. Caeca long ending near posterior extremity, each measures 1.27-2 long and 0.038-0.069 wide. Testes diagnoal or tandem and spherical in shape. Anterior testis 0.077-0.22 long and 0.11-0.20 wide. Posterior testis 0.10-0.21 long and 0.11-0.20 wide. Cirrus pouch large, to left of ventral sucker, containing saccular seminal vesicle 0.038-0.084 long and 0.023-0.053 wide, large pars prostatica and long folded cirrus. Ovary pretesticular 0.084-0.19 long and 0.13-0.19 wide, separated from anterior testis by uterine coils. Uterus voluminous, occupying most of hindbody. Metraterm half as long as cirrus pouch. Genital atrium small. Genital pore median, lying a short distance anterior to ventral sucker. Vitelline follicles in lateral field between ventral sucker and posterior testis. Excretory vesicle tubular and bifurcating at ovarian level. Eggs numerous,, each 20-34 μ long and 10-20 μ wide.

Nahhas and Cable (1964) established the genus *Gymnotergestia* and described *Gymnotergestia chaetodipteri* from *Chaetodipterus faber* from Curacao and Jamaica as the type species. They outlined the generic diagnosis of the genus *Gymnotergestia* as follows: Fellodistomatidae, Distomes with elongated body: Cuticle unarmed, annulated, especially in forebody. Oral sucker cup-shaped, without lobes. Prepharynx absent; pharynx elongated, conical; caeca long. Testes two, diagonal or tandem; cirrus pouch well-developed, at level of acetabulum; external seminal vesicle absent. Ovary pretesticular; true seminal receptacle absent; uterus voluminous, extending posterior to gonads; metraterm muscular. Vitelline follicles numerous, in lateral fields posterior to acetabulum. Genital pore median, anterior to acetabulum. Excretory vesicle Y-shaped. Parasites in intestine of marine fishes. Yamaguti (1971) agreed with Nahhas and Cable (1964) in considering *Gymnotergestia* as a valid genus and outlined the same generic diagnosis and listed no other species belonging to the genus *Gymnotergestia* Nahhas and Cable, 1964. No other species belonging to the genus *Gymnotergestia* were added.

The present material is similar to *G. chaetodipteri* Nahhas and Cable, 1964 in its main features, although certain morphological infraspecific differences are observed (Table 1). The report of *G. chaetodipteri* from *Serranus scriba* represents a new host and locality records of this parasite in Libian coastal waters.

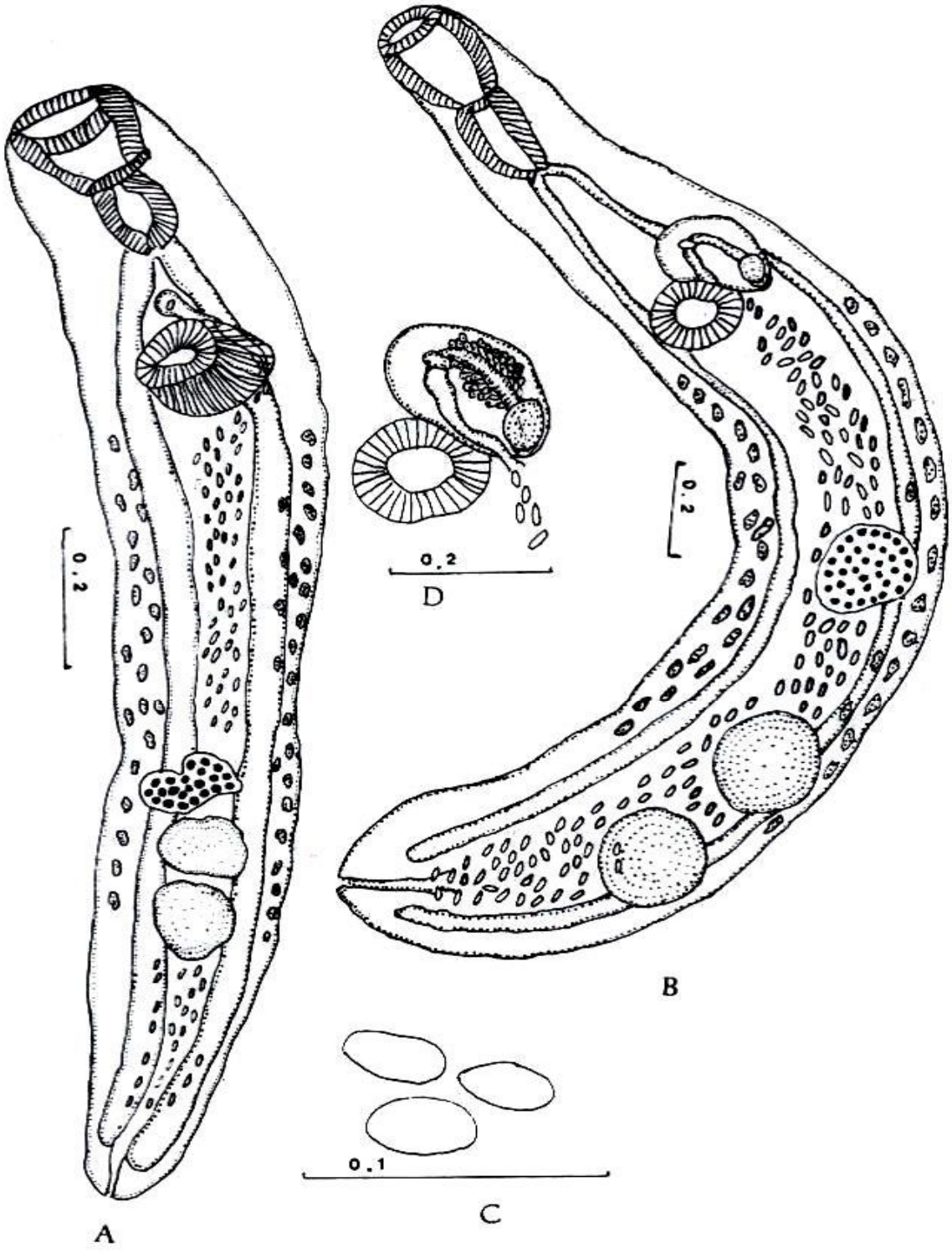


Fig. (1)
A and B : Ventral view C: Eggs D: Cirrus pouch

Table (1) A COMPARISON BETWEEN DESCRIPTIONS OF *G. CHAETODIPTERI* NAHHES AND CABLE, 1964 and the present one.

Characters	Original description from Curacao and Jamaica	Present description from libya
Length	1.66-4.28	1.92-2.84
Width	0.38-0.56	0.26-0.42
Oral sucker	0.14-0.18x 0.20-0.28	0.13-0.24x 0.15-0.17
Ventral sucker	0.32-0.44x 0.24-0.34	0.13-0.15x 0.15-0.18
Pharynx	0.30-0.41x 0.12-0.17	0.10-0.20x 0.53-0.13
Oesophagus	Short	Short
Anterior testis	0.17-0.28x 0.14-0.17	0.77-0.22x 0.11-0.20
Posterior testis		0.10-0.21x 0.11-0.20
Cirrus pouch	Large, to left of acetabulum	0.11-0.23x 0.069-0.16
Ovary	0.12-0.18x 0.10-0.13	0.084-0.19x 0.13-0.19
Receptaculum semi	Absent	Absent
Vitellaria	Follicles in lateral fields	Follicles in lateral fields
Eggs	30-36 x 20-25 μ	20-34 x 10-20 μ
Hosts	*Chaetodipterus faber*	*Serranus scriba*
Location	Lower intestine	Small intestine

2) *Opechona sardinellae* Nahhas and Cable, 1964 (Fig. 2)

The description is based on ten specimens: Body elongate oval, 2-2.25 long and 0.78-0.84 in maximum wideth, tapering toward anterior end and rounded in posterior end. Tegument spinose, spines extending to near posterior extremity. Oral sucker round in shape 0.27-0.31 long and 0.27-0.29 wide. Ventral sucker somewhat preequatorial 0.22-0.27 long and 0.23-0.30 wide. Suckers ratio 1.2-1.4:1. Prepharynx short and pharynx massive 0.12-0.14 long and 0.17-0.19 wide. Oesophagus moderately long 0.24-0.30 long and 0.066-0.069 wide. Intestinal caeca long, reaching midway between posterior testis and posterior extremity 1.45-1.59 in length. Testes tandem, lying in posterior third of body. Anterior testis measures 0.16-0.20 long and 0.28-0.33 wide. Posterior testis measures 0.19-0.21 long and 0.13-0.34 wide. Cirrus pouch elongate, extending to about midway between acetabulum and ovary and containing small internal seminal vesicle, pars prostatica and cirrus. External seminal vesicle tubular 0.22-0.25 in length. Ovary

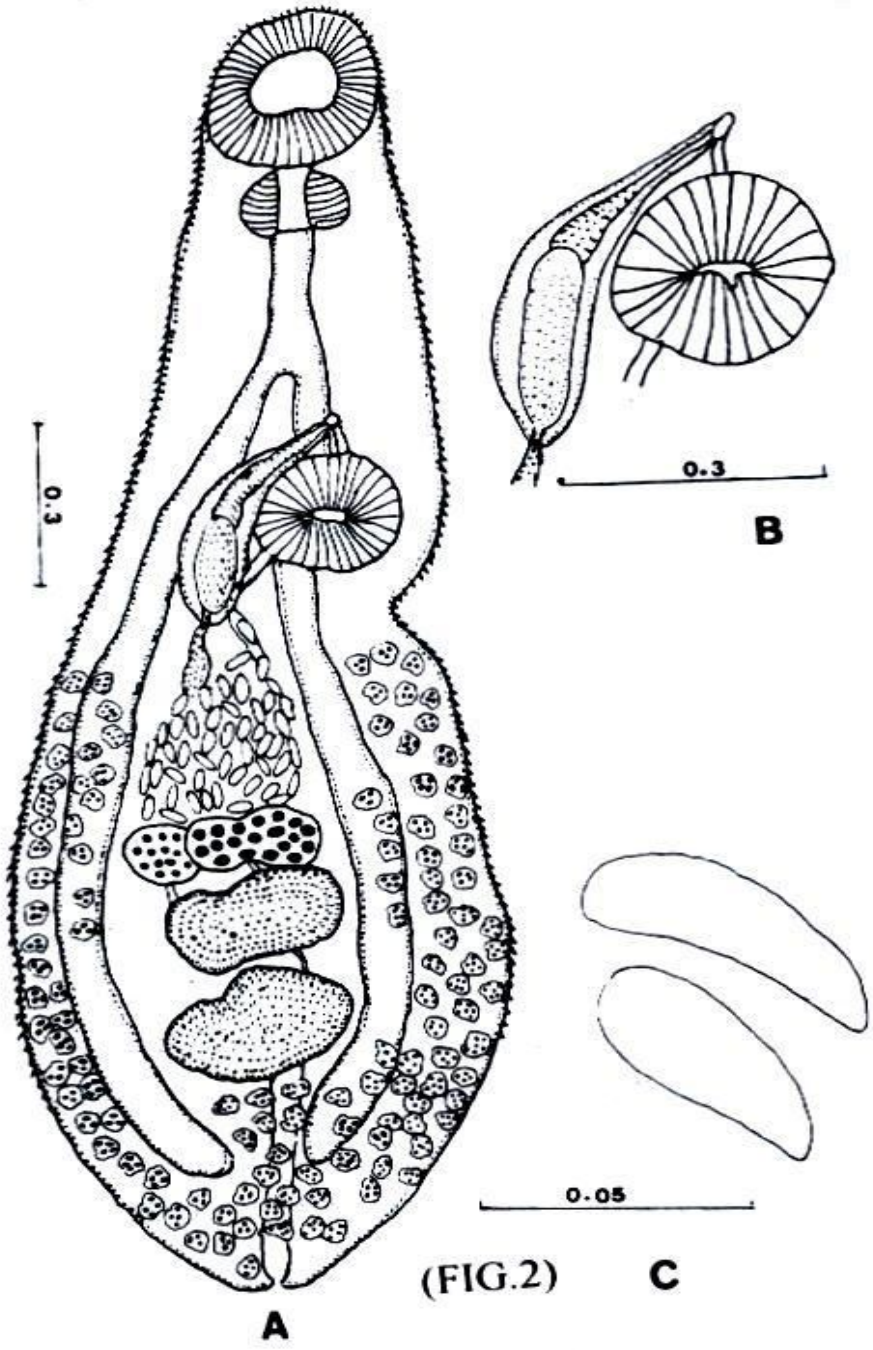


Fig. (2)
A) Ventral view B) Cirrus pouch C) Eggs

pretesticular 0.10-0.12 long and 0.22-0.26 wide. Receptaculum seminis spherical and lies to right of ovary 0.098-0.1 in diameter. Uterus pretesticular, terminating in short muscular metraterm. Genital pore lies at level between acetabulum and intestinal bifuraction. Vitelline follicles occupying most of hindbody and extending in lateral fields between acetabulum and posterior extremity. Eggs large 51-58 μ long and 20-22 μ wide. Excretory vesicle tubular and extending to level of pharynx in living specimens. Excretory pore terminal with sphincter.

Nahhas and Cable (1964) described two species belonging to the genus *Opechona* Looss, 1907, *Opechona chloroscombri* and *O. sardinellae* from *Chloroscombrus chrysurus* and *Sardinella macrophtbalmus* respectively from Curacao and Jamaica. They also discussed the specific diagnosis of the two species. Yamaguti (1971) outlined the generic diagnosis of the genus *Opechona* Looss, 1907 and listed 17 species belonging to it. Madhavi (1972) added *O. waltairensis* from *Rastrelliger kanagurta* from Waltair Coast Bay of Bengal. It differs from related species by combinations of size and shape of various organs. Gaevskaya and Kovaleva (1982) described *O. magnibursata* from *Trachurus trachurus* in the Bay of Biscay, Atlantic Ocean, it differs from the related species by extending of vitellaria more anteriorly and the anterior position of acetabulum. Ahmed (1984) added *O. siddiqi* from *Rastrelliger kanagurta* in India. It differs from the related species by larger oral sucker, smaller suckers ratio and larger pharynx. Gaevskaya and Aleshkina (1985) added *O. acanthoris* from *Scomber japonicus* from the eastern Atlantic. It differs from the other species in having fewer body spines, larger perioral spines and smaller eggs. Machida (1986) discussed the distribution and the hosts range of *O. alaskensis* from *Aptocyclus ventricosus* caught from Northern Japan. Wallet and Kohn (1987) recorded *O. bacillaris* from *Peprilus paru* from coastal waters of Rio de Janeiro in Brazil. Gaevskaya and Solonchenko (1989) reported *O. magnibursata* from *Trachurus mediterraneus* from the Black Sea. Gaevskaya (1990) reported *O. bacillaris* from new host *Helicolenus tristanensis* in the Whale Ridge in the Atlantic Ocean. Ahmed (1991) added *O. gaevskayae* from *Fistularia villosa* from the Arabian Sea in India. It differs from other species by having large size, more extending vitellaria, larger eggs and the posterior position of acetabulum. Cremonte and Sardella (1997) reported *Opechona* spp. from *Scomber japonicus* from two

Table (2) A COMPARISON BETWEEN TWO DESCRIPTIONS OF *O. SARDINELLAE* NAHHES AND CABLE, 1964,

Characters	The Original description	The Present work
Length	1.03 - 1.15	2.52
Width	0.28 - 0.53	0.78 - 0.84
Oral sucker	0.075 - 0.13x0.10 - 0.15	0.27 - 0.31x 0.27 - 0.29
Ventral sucker	0.066 - 0.11	0.22 - 0.27x 0.23 - 0.30
Suckers ratio	0.7 - 0.8 : 1	1.2 - 1.4 : 1
Pharynx	0.090 - 0.15	0.12 - 0.14x 0.17 - 0.19
Oesophagus	0.090 - 0.15 in length	0.24 - 0.30 in length
Cirrus pouch	present	0.45- 0.50x 0.099 - 0.10
Anterior testis	0.075 - 0.15x0.098 - 0.16	0.16- 0.20x 0.28 - 0.33
Posterior testis	0.076 - 0.15x0.098 - 0.16	0.19- 0.21x 0.31 - 0.34
Ovary	0.055 - 0.10x0.080 - 0.11	0.10- 0.12x 0.22 - 0.26
Receptaculum semi	present	0.098 - 0.1 in diameter
Eggs	58 - 68 x 35 - 45	51 - 85x 20 - 22 μ
Excretory vesicle	Tubular	Tubular
Hosts	*Sadinella macrophthalmus*	*Labrus bergylata*
Location	Intestine	Intestine
Locality	Curacao and Jamaica	Libya

coastal areas of Argentina. *O. sardinellae* was originally described by Nahhas and Cable (1964) from *Sardinella macrophthalmus* from Curacao and Jamaica. The present material is similar to the specimens described by Nahhas and Cable (1964) but the present description added more details about the body length, oral sucker length and eggs size (Table 2).

It is worthy to mention that *O. sardinellae* was reported for the first time in Libya. The species is also recorded from a new host viz *Labrus bergylata.*

ACKNOWLEDGEMENT

The wirter is grateful to Professor Ameen A. Ashour, Professor of Parasitology, Faculty of Science, Ain Shams University, for his kind encouragement and provision of various facilities needed for the present work.

REFERENCES

Ahmed, J. (1984): Studies on five new digenetic trematodes from marine fishes from the Arabian Sea, of the Bombay Coast, India. Pakistan J. Zool., **16 (1):** 45-59.

Ahmed, J. (1991): A new genus aand three new species of digenetic trematodes from marine fishes of Arabian Sea. Pakistan J. Zool., **23 (2):** 99-104.

Cremonte, F. and Sardella, N.H. (1997): The parasite fauna of *Scomber japonicus* Houttuya, 1782 (Scombridae) in two zones of the Argentine Sea. Fisher. Res., **31 (1,2):** 1-9.

Gaevskaya, A.V. (1990): Some notes on trematodes of the genus *Opechona* (Lepocreadiidae). Parasitol., **24 (5):** 439-442.

Gaevskaya, A.V. and Aleshkina, L.D. (1985): New species of trematodes from the Eastern Atlantic. Parazitologiya, **19 (2):** 105-112.

Gaevskaya, A.V. and Kovaleva, A.A. (1982): The trematode fauna of Atlantic *Trachurus* and its special features. Gidrobiologicheskii Zhurnal, **18 (1):** 60-65.

Gaevskaya, A.V. and Solonchenko, A.I. (1989): New data on the trematodes of Black Sea Fish. Nauchnye Doklady Vyshei Skkoly, Biologicheskie Nauki, Moscow, **5:** 43-47.

Looss, A. (1907): Cited from Nahhas and Cable, 1964.

Machida, M. (1986): Helminth parasites of cyclopterid fish *Aptocyclus ventricosus*, caught from North Japan. Bull. Nat. Sci. Mus. Japan, A (Zoology), **11 (3):** 123-128.

Madhavi, R. (1972): Digenetic trematodes from marine fishes of Waltair Coast Bay of Bengal (Lepocreadiidae). J. Parasit., **58 (2):** 217-225.

Meadows, P.S. (1992): Pollutions, Conservation and the Mediterranean ecosystem. A perspective view. Pro. Inter. Semin. Combat Pollut. & Conserv. Marine. Wlth Mediter. Sea. Bull. Marine Biol. Res., Cent., **9:** 119.

Nahhas, F.M. and Cable, R.M. (1964): Digenetic and aspidogastrid trematodes from marine fishes of Curacao and Jamaica. Tulane Studies in Zoology, **11 (5)**: 169-228.

Overstreet, R.M. and Howse, H.D. (1977): Some parasites and diseases of estuarine fishes in bolluted habitats of Mississippi. Ann. New York Acad. Sci., 298.

Paperna, I. and Overstreet, R.M. (1981): Parasites and diseases of mullets in aquaculture of grey mullets. Great Britain Cambridge University Press.

Wallet, M. and Kohn, A. (1987): Trematode parsites of marine fish from Coastal water of Rio de Janeiro, Brazil. Mem. do Insti., Oswaldo Cruz, **82 (1)**: 21-27.

Yamaguti, S. (1971): Synopsis of digenetic treamtodes of vertebrates. Tokyo, Keigaku Publ., Japan.