Recording *callitetrarhynchus gracilis* (rudolphi, 1819) and *callitetrarhynchus* sp. (cestoda: trypanorhyncha) parasitic in tow carangid fishes in north west arab gulf, Iraq

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Abstract:

Recording two species of larval cestodes *Callitetrarhynchus gracilis* and *Callitetrarhynchus* sp. (Cestoda: Trypanorhyncha) parasitic in body cavity of two carangid fishes (*Carangoides malabaricus* and *Megalaspis cordyla*) from north west Arab Gulf, Iraq, is described. The species *Callitetrarhynchus* sp. was recorded for the first time in Iraq in carangid fishes. Also, two fish species (*C. malabaricus* and *M. cordyla*) are considered as new hosts for *C. gracilis* and *Callitetrarhynchus* sp. in the Arab Gulf. The cestodes were sent to Prof. Dr. Harry W. Palm, Department of Fisheries Biology, Institute Zoo Morphology, Germany for confirmation of the identification.

Key words: Cestode, *Callitetrarhynchus gracilis*, *Callitetrarhynchus* sp., Trypanorhyncha, carangid fishes, Iraq

Introduction:

Many of the world's aquatic resources have been diminished by over fishing. As consequence, there has been an increasing need for aquaculture to contribute sea food to the world market. For example, in 2006, aquaculture contributed about 47% of the world's sea food supplies [1].

The present collection from the Arab Gulf was represented by 18 species of carangid fish. There are another 20 species recorded from Arab Gulf by different authors, making the grand total 38 species.

The information on marine fishes of the Arab Gulf was documented through the works of [2, 3. 4, 5] and some other authors. Fishes are commonly vulnerable to disease and parasite invasions. This is not due to contamination or decaying when fishes are living in their natural environment [6].

Trypanorhynch belong to the most abundant marine fish parasites especially in tropical waters [7]. Beside their negative effects on fish health, these parasites can infect the fishes musculature and are of economic significance [8].

The mature found in elasmobranch and often use teleost fishes as intermediate or transport hosts [9]. Though accidental human infections are scarce (Bates, 1990). Worms in the fish flesh or body cavity reduce the fish market value by making them unappealing to consumers [9]. [8] diagnosed four species of larva of *Dasyhynchus thomasi*, *Pintneriella musculicola*, *Callitetrarhynchus speciosus* and *Poecilancistrum coryophylum* in the muscles of six species of fish in Saudia costal water.

Four species of trypanorhynch cestodes *Callitetrarhynchus gracilis*,

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Dasyrhynchus pacificus, *Nybelinia lamonteae* and *Otobothtium penetrates* from different species of marine fishes were recorded by [10].

Trypanorhynch are a group of tapeworms described from all world Oceans [7]. The larvae found on free-living host fish species was difficult to demonstrate, although [11] gave an opinion that such influences may diverse and include growth disturbances and lowering of the condition factor. Direct pathogenic effects have been established in only a few cases [12, 13]. [14] attributed an increase mortality of *Saurida tumbil.* The pressure of the ventral aorta exerted by the blastocyst of *Callitetrarhynchus gracilis.*

The aim of this study was to: Due to the of scarce information studies concerning the record and description of parasites in some species of carangid fishes in the Arab Gulf within the Iraqi territorial waters, the present work has designed to contribute in filling the gap in this area and to detection of cestodes taxonomy.

Materials and methods:

Sample collection

A total of 450 fish specimens (240 *C. malabaricus* and 214 *M. cordyla*) measuring 21.5±4.5 cm and 26±5.5 cm in total length, respectively, and weighing 350±250 gm and 600±300 gm respectively, were examined for cestodes during the period from September 2010 to February 2011. They were captured by trawl net from the Iraqi marine waters, northwest Arab Gulf (latitudes 47° 30′ to 48° 15′; longitude 30° 50′ to 30° 00′). Fishes were transported to laboratory using a plastic box and were stored in freezer until examination. The fishes were identified according to [15].

The cestodes were transferred to small petri dish. The specimens were fixed in AFA and stored in 7o % ethyl alcohol. For the examination of the parasites, it was compressed beneath coverslip directly and fixed with AFA and stained by Acetocarmine staining technique [7]. Drawings were made by the aid of a camera Lucida. The cestodes were sent to Prof. Dr. Harry W. Palm, Department of Fisheries Biology, Institute Zoo Morphology, Germany for confirmation of the identification.

Results and discussion:

Cestodes belong to *Callitetrarhynchus gracilis* (Rudolphi, 1819) and *Callitetrarhynchus* sp. of the order Trypanorhyncha, family Lacistorhynchidae.

Type host: *Carangoides malabaricus* and *Megalaspis cordyla*

Locality: Arab Gulf, Iraqi territorial waters

Infection site: Intestine and body cavity

Material deposition (*Callitetrarhynchus* sp.): Voucher specimens were deposited in the Natural History Museum, London accessions NHMUK 2012.6.1.4.5

In table (1) Parasite- host list of the present study, which was isolated in carangid fishes. The cestod *Callitetrarhynchus* sp. recorded for the first time in Iraqi territorial waters of the Arab Gulf. *C. malabaricus* and *M. cordyla* are a new host for this parasite in the Arab Gulf.

Table (1): Parasite- host list of the present study.

Parasite	Fish host
Callitetrarhynchus gracilis	*Carangoides malabaricus*** *Megalaspis cordyla***
Callitetrarhynchus sp.*	*C. malabaricus***
	*M. cordyla***

*First record in Iraq

**New host record in Iraq

Taxonomically, the trypanorhynch cestodes was complex and considered the most chaotic and confused of tapeworm group. [16] divided the Trypanorhyncha into two suborders: Atheca and Thecaphora on the basis of presence or absence of a larvae with a blastocyst. The first workable organization of the Trypanorhyncha was by [17]. It was widely spread in world oceans and about 200-250 species belong to the Trypanorhyncha was current recognized [18, 19]. Also, it belongs to the most common helminth parasites in marine fish [7].

Callitetrarhynchus gracilis (Rudolphi, 1819)

Description (based on 10 specimens):

Body elongated, length 25 mm and a maximum width 6 mm. Scolex, length 0.15 mm and width 0.126 mm. Bothridia, , length 0.27 mm. Pars bulbosa, length 0.12 mm. Pars vaginalis, 0.50 mm. The tentacles bulbs reach the end of the scolex, but do not occupy the entire width of Scolex, hook lacking lateral wings (Fig. 1, 2).

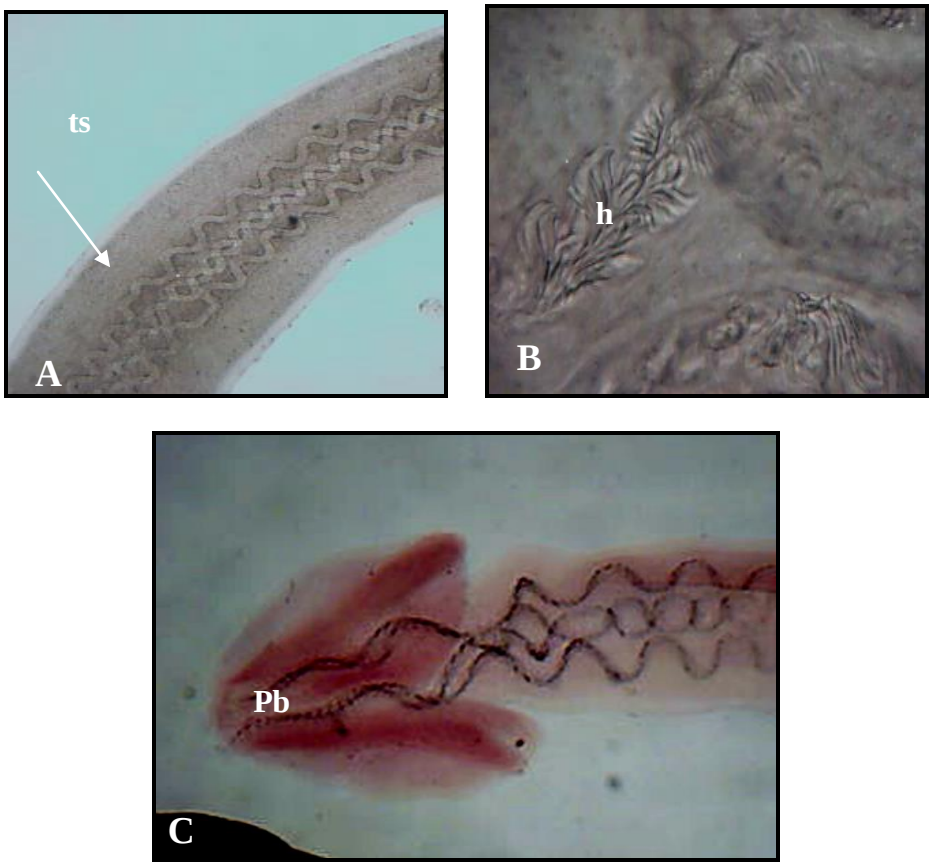

Fig. (1): Larva of *Callitetrarhynchus gracilis,* hooks (h), pars bothria (pb), tentacles sheeth (ts), A and C: 100X, B: 400X (Aceto carmine stain).

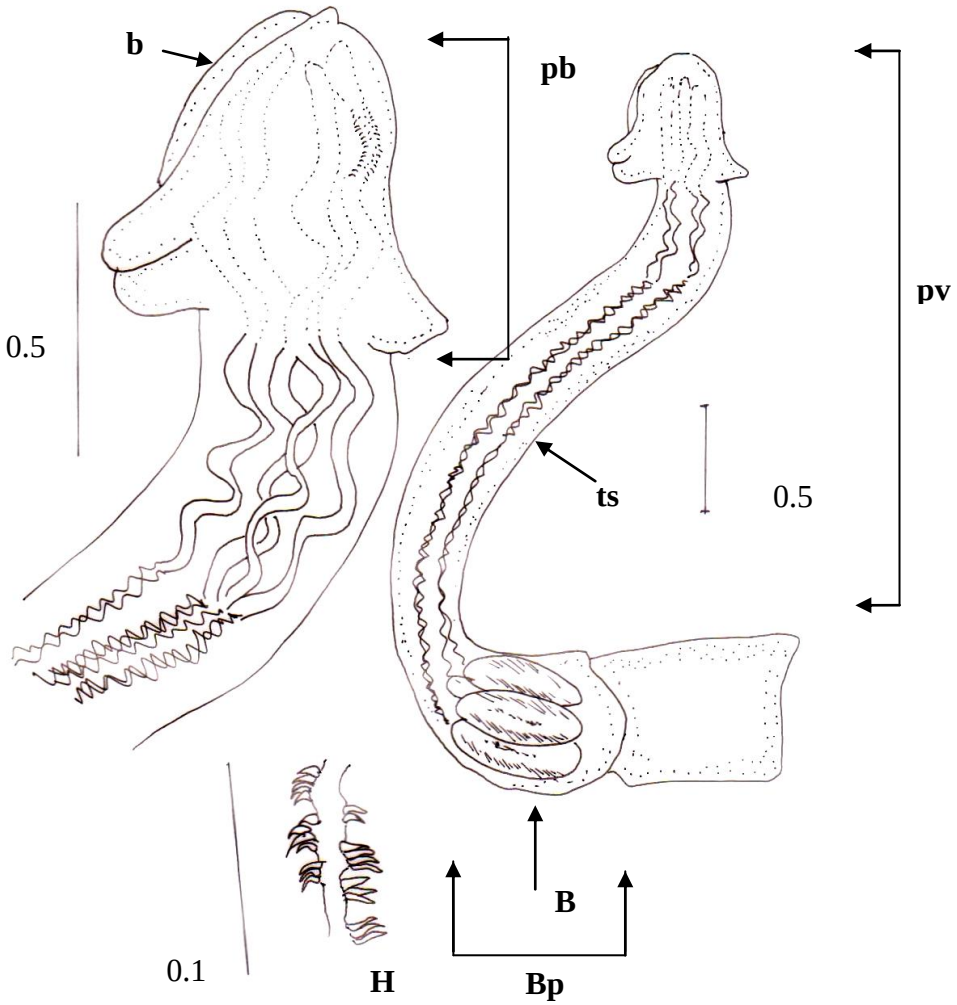

Fig. (2): *Callitetrarhynchus gracilis,* bothrium (b), pars bothria (pb), bulb (B), pars bulbose (Bb) hooks (H), tentacles sheeth (ts), pars vaginalis (pv).

The specimens that recorded in this study were similar with specimens recorded by [10, 19] in the description but the measurements are less and *C. malabaricus* and *M. cordyla* of Carangidae fishes are considered as a new host.

This parasite was isolated from more than 150 fish species worldwide such as in Miami [20], Bermuda [21], California Brazil [22, 23,24], Turkey [25] and in the Red Sea, Egypt [26], Yemen [19]. In Arab Gulf, [27] and [10] recorded this parasite from *Scomberoides cammmersoniaus* which represent as a new host record of this parasite. [28] recorded *Callitetrarhynchus. s*p. (*c. f. gracilis*) from many hosts in the adult from *Mustelus mosis* but the larvae recorded from four species of fish.

Callitetrarhynchus sp.

Description (based on 10 specimens):

Body elongated, length 21 mm and a maximum width 4.5 mm. Bothridia, length 0.9 mm and 0.12 width. Pars vaginalis 0.50 mm. The tentacles bulbs reach the end of the scolex, but do not occupy the entire width of Scolex, hook lacking lateral wings. Pars bulbosa, length 0.075 mm and 0.025 mm width. Pars bulbosa (appendix), 0.44 mm length and 0.05 mm width (Fig. 3, 4).

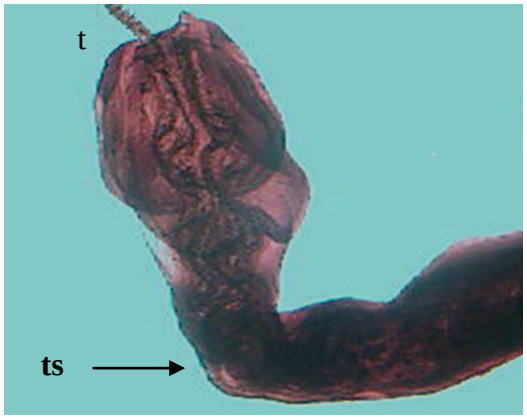

Fig. (3): *Callitetrarhynchus* sp., tentacles sheeth (ts), (100X)(Aceto carmine stain).

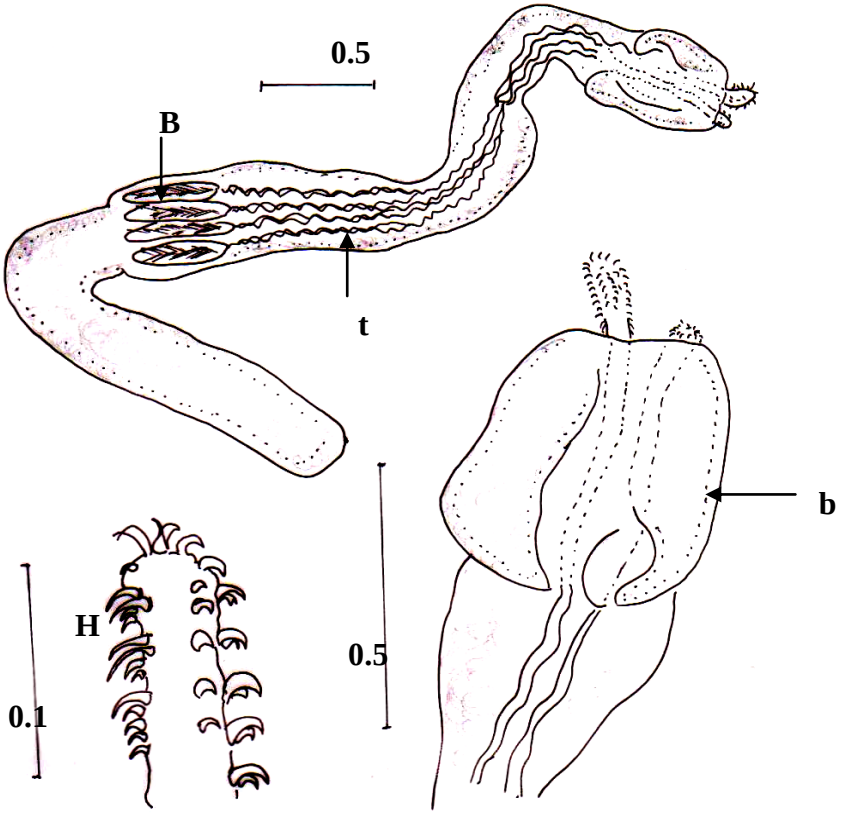

Fig. (4): *Callitetrarhynchus* sp, bothrium (b), bulb (B), hooks (H) tentacles sheeth (ts),

In the present study, this genus was sent to Dr. Palm to confirm the taxonomy and he said the tentacles inside the sheath so fables not *C. gracilis* because it was different in shape of hooks, therefore remained *Callitetrarhynchus* sp.

For a period of time, it was believed that this genus has only one species *C. gracilis*, but later it has many synonyms which, were *Rhynchobothrium speciosum* [29], but [22] explain species difference which transfer to genus *Callitetrarhynchus* with some modifications to the species and became *C. speciosum* [29].

[24] recorded larvae of this species from body cavity and kidney from three species of marine fishes and [30] reported this species from *Prionace glauca.*

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تسجيل للديدان الشريطية *Callitetrarhynchus* (Rudolphi, 1819) *gracilis* و *Callitetrarhynchus* sp. (Cestoda: Trypanorhyncha) متطفلة في نوعين من أسماك عائلة الحمام، شمال غرب الخليج العربي، العراق

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الخلاصة:

تم تسجيل نوعين من يرقات الديدان الشريطية *Callitetrarhynchus gracilis* و *Callitetrarhynchus* sp. (Cestoda: Trypanorhyncha) متطفلة في التجويف الجسمي لنوعين من أسماك عائلة الحمام *Carangiodes malabaricus* و*Megalaspis cordyla* والتي جمعت من شمال غرب الخليج العربي يعد هذا التسجيل الأول للطفيلي *Callitetrarhynchus* sp. في مياه الخليج العربي والعراق وتعد السمكتين إضافة جديدة لهذه الانواع *C. gracilis* و *Callitetrarhynchus* sp. في الخليج العربي. تم تأكيد تصنيف العينات من قبل الباحث الالماني والمصنف العالمي Dr. Harry W. Palm وحفظت النماذج كعينات مرجعية في المتحف البريطاني للتاريخ الطبيعي/ المملكة المتحدة.