

# **First Record of *Trichodina magna* Van As and Basson, 1989 (Ciliophora: Trichodinidae) from Gills of Blue Tilapia *Oreochromis aureus* (Steindachner, 1864) in Iraq**

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## **Abstract**

The Ciliophoran *Trichodina magna* Van As and Basson, 1989 is recorded for the first time in Iraq from gills of the blue tilapia *Oreochromis aureus* (Steindachner, 1864) Iraq from Al-Graiat location on the Tigris River at Baghdad city. The description and measurements of this external parasite as well as its illustrations are given.

**Key words:** Ciliophora, *Trichodina magna*, *Oreochromis aureus*, Tigris River, Baghdad.

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## 1. Introduction

Trichodinid ciliophorans are among the greatest common and mostly spread groups of symbionts as parasites of aquatic invertebrate and vertebrate hosts [1]. About 300 nominal trichodinid species have been described from different locations in the world [2]. Species of ten genera are reported within the family Trichodinidae among which the genus *Trichodina* Ehrenberg, 1838 is the major of this family as more than 200 species have been designated from different fish species [3]. Species of this genus are among the most frequently encountered ciliates on marine and freshwater animals fishes, molluscs as well as amphibians [2]. *Trichodina* species are global parasites which exist throughout the year. They can parasitize on all fish species [4] and survive on and infect the skin, fins and gills of both freshwater and marine fishes [5].

In Iraq, many *Trichodina* species have been reported from freshwater fishes from various water bodies. The first investigation of species of this genus was on *T. domerguei* which was recorded from eight species of fishes transported from various fish markets in Baghdad city [6]. In recent years, the trichodinid ciliates of freshwater fishes of Iraq have received little attention [7, 8, 9, 10, 11].

Mutlak and Al-Faisal [12] revealed that some exotic fish species which were introduced from the neighboring countries had find their way to inland waters of Iraq. These included two species of the family Cichlidae: redbelly tilapia *Coptodon zillii* (Gervais, 1848) and the blue tilapia *Oreochromis aureus* (Steindachner, 1864).

The present investigation describes the first occurrence of an additional *Trichodina* species, *T. magna* which parasitizes gills of the blue tilapia *O. aureus* from Al-Graiat places at the Tigris River at Baghdad city.

## 2. Materials and Methods

Throughout the period from July 2015 until the end of March 2016, a total of 58 specimens of the blue tilapia *O. aureus* were collected from different locations along Tigris River near Al-Graiat region in Baghdad province. Fishes were transported alive to the laboratory of Parasitology, College of Education for pure science (Ibn-Al-Haitham) for parasitological examination. Smears of gills and skin were prepared and microscopically inspected for the existence of trichodinids. The positive slides were air-dried, fixed by absolute methanol and stained with Giemsa stain according to the method proposed by Shuaib and Osman [13]. The systematic descriptions used in the present study were based on the observations of living as well as Giemsa stained specimens. Photographs were taken with an Olympus camera. Drawings were done by using a camera Lucida.

Terminology, parasite identification, detailed description and measurements of the body, adhesive disc, central part, dentical ring, denticles, central part and border membrane were mainly carried out according to Van As and Basson [1].

All measurements were given in micrometers ( $\mu\text{m}$ ) based on five trichodinid specimens. The mean values of all measurements employed in this paper are used in the description as in the following order: minimum- maximum (mean) values.

Tilapias were identified according to Mutlak and Al-Faisal [12] and their scientific and common names were used according to Froese & Pauly [14]. The information on the previous account records of trichodinids were checked with the index-catalogue of parasites and disease agents of fishes of Iraq by Mhaisen [15].

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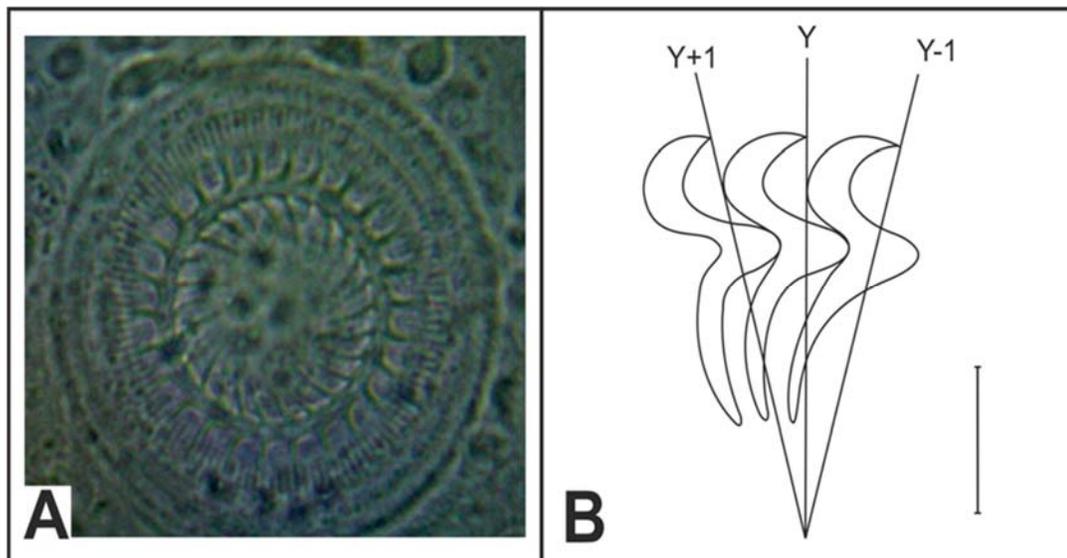
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### 3. Results and Discussion

*T. magna* was obtained from gills of seven fish of blue tilapia *O. aureus* with a prevalence of 12 % and mean intensity of 4. The following is an account on the description and measurements (in  $\mu\text{m}$ , based on five specimens) of this parasite as shown in Fig. (1).

Large trichodinid, 71.2-73.4 (72.3) in diameter. Adhesive disc usually rounded, rarely oblong, 60.2-62.8 (61.5) in diameter which is encircled by finely striated border membrane 6.2-6.6 (6.4) wide. Number of radial pins per denticle 10-12 (11). Diameter of denticle ring 36.3-38.5 (37.4). Number of denticles 24-26 (25). Ray 12.1-12.9 (12.5) long; extent of blade 7.9-8.5 (8.2), width of central part 6.8-7.4 (7.1).

Blade narrow and falcate-shaped, distal surface of the blade curved. Tangent point somewhat lower than distal point. The posterior margin takes a shape of a curve and the deepest point lies at the central of this curve. Anterior and posterior margins of blade almost parallel. The central part extends midway past to y axis. Point of central part round and lies close link with subsequent denticle. Shape of central part above x axis looks like to section below. Ray thin, tapering a little to acute round point, passage point of y + 1 axis nearly at mid-length of ray. Macronucleus of U-shaped, external diameter 41.2-49.0 (45.1), length of area between ends of macronucleus 7.0-7.4 (7.2). Micronucleus could not be noticed in any of the studied specimens.



**Figure (1):** *Trichodina magna* Photomicrograph (400x), B- Diagrammatic drawing. (Scale bar = 12  $\mu\text{m}$ ).

The description and measurements of the present specimens are similar to those reported by Van As and Basson [1] for *T. magna* found on skin and fins of *Tilapia rendalli swierstrae* in South Africa. This parasite was never reported from any fish species in Iraq before [15], therefore, the present parasite is considered as the first record in Iraq.

*T. magna* was firstly reported by Van As and Basson [1]. Martins and Ghiraldelli [16] described this parasite from the Nile tilapia *Oreochromis niloticus* assembled from fish ponds of Santa Catharina State in Brazil and El-Tantawy and El-Sherbiny [17] from *Clarias garipepinus* at the Nile Delta water in Egypt.

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*T. magna* of this study is similar to those reported by Van as and Basson [1] and specimens described by El-Tantawy and El-Sherbiny [17], but differs from the specimens described by Martins and Ghiraldelli [16]. The most particular difference is that the ray of denticle in the present specimens and that of Van As and Basson [1] is directed to anterior, extending above the  $y + 1$  axis while in specimens of Martins and Ghiraldelli [16] the ray is located between the  $y$  and  $y + 1$  axes.

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