

The First Record of Two Species of Protozoa: *Vorticella globularia* Müller, 1773 and *Vorticella costata* (Sommer, 1951) from *Planiliza abu* in the Babylon Province, Iraq

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Abstract

During the period from November 2015 till the end of March 2016, a total of 218 fish specimens belonging to *Planiliza abu* from Euphrates River at Al-Hilla city and the Babil drainage network Babylon province were inspected for parasites at Laboratory at the Al-Musaib Technical College. Two *Vorticella* were recorded for the first time in Iraq from skin and gills of *P. abu*. These were: *Vorticella globularia* Müller, 1773 and *Vorticella costata* (Sommer, 1951). The description and measurement of this parasite as well as their measurements were given.

Keyword: *Vorticella globularia*, *Vorticella costata*, Protozoa, *Planiliza abu*.

الخلاصة

خلال الفترة من شهر تشرين الثاني 2015 ولغاية نهاية شهر آذار 2016 فحصت 218 سمكة خشني *Planiliza abu* من نهر الفرات وشبكة ميازل بابل في مدينة الحلة محافظة بابل، في مختبر الكلية التقنية المسيب، تم تسجيل نوعين من جنس *Vorticella* لأول مرة في العراق من جلد وغلاصم سمكة الخشني *P. abu* وهما: *Vorticella globularia* Müller, 1773 و *Vorticella costata* (Sommer, 1951). أعطيت المواصفات وقياساتهما.

الكلمات المفتاحية: فورتيسلا كلوبولاريا، فورتيسلا كوستاتا، الحيوانات الابدائية، سمكة الخشني.

Introduction

Planiliza abu (Heckel, 1843) is a Mugilid fish, synonyms (Abukhraiza or Khishni) and inhabits: Iraq, Syria, Pakistan, Iran, (Mahdi, 1967; Coad, 1980) and Turkey (Kuru, 1979). It is found in rivers, streams, drains, channels, lakes, ponds, reservoirs and fish farms of Iraq and neighboring countries (Al-Zubaidy, 2009). The species commonest in freshwaters (Beckman, 1962 and Naama *et al.*, 1986) but it has also been recorded in Iraqi brackish water and from the Khawr-Alzubeir in a marine environment (Nasir and Naama, 1988). Fishes can be infected with two types of diseases: infectious and non-infectious diseases (Roberts, 1978). Non infectious diseases are caused by abiotic factors like chemical, mechanical and physical changes. These diseases are called environmental diseases (Bauer *et al.*, 1969 and Roberts, 1978). Infectious diseases are caused by biotic factors such as viruses, bacteria, fungi and parasites. Parasites cause a decrease in fish resistance to other diseases and can be exposed to secondary infections like bacterial and fungal diseases (Olsen, 1974 and Johnsen, 1978). Protozoan parasites undoubtedly comprise one of the most important groups of pathogens negatively influencing the wellbeing of both cultured and feral fish, They have not received much attention, because of the technical difficulties inherent in their study in comparison to the much larger helminthes parasites (Lom and Dykova, 1992). Infections by sessile peritrichs such as *Ambiphrya* and *Vorticella*

are common in many cultured fishes (Basson and Van As, 2006). *Vorticella* L. was the earliest genus name in use for a peritrich and is one of the most common and important groups of ciliates, inhabiting all marine, freshwater and terrestrial biotopes (Corliss, 1979; Warren, 1986; Foissner *et al.*, 1992;; Sun *et al.*, 2005 and Lynn, 2008). The genus belongs to the family Vorticellidae, a morphologically distinct group within the subclass Peritrichia. *Vorticella* was erected by Linnaeus (1767) to include microscopic animalcules” with a stalk of some sort and a bell-shaped body crowned with a large oral area surrounded by cilia. Nekuie Fard *et al.* (2011) observed *Vertocella similis* on gill and legs of *Astacus leptodactylus* in Aras Reservoir West Azarbaijan, Iran. Reda (2011) found *Vorticella* spp. form skin of fish *Sarotherodon galilaeus* in Nile river, Egypt. Guguloth *et al.* (2013) observed this parasite *Vorticella* sp. on skin and gill of *Cyprinus carpio* and *Ctenopharyngodon idella* in Bheries of West Bengal, India. Kayış *et al.* (2013) notice *Vorticella* sp. On gill of of *Cichlasoma nigrofasciatum* in Turkey. Abdel-Baki *et al.* (2014) find *Vorticella* spp. on skin, fins and gill of in Nile tilapia (*Oreochromis niloticus*) form farms in Riyadh, Saudi Arabia. Dash *et al.* (2015) recorded this parasite *Vorticella* sp. on skin and gill of *C. carpio* and *C. idella* in West Bengal, India. Al-Salmany (2015) reported this parasite. *Vorticella* sp. in skin of in *P. abu* and *Cyprinion macrostomum* in Euphrates river, Iraq. The present article reports the occurred of additional two ciliphora to the parasitic fauna of freshwater fishes of Iraq.

Materials and Methods

A total of 218 *P. abu* fresh water fish were collected from the Euphrates River at Hilla city, Babylon province and Babil drainage network. During the period from November 2015 till the end of March 2016. The collected fish were transported to the laboratory in tank with good aeration. They were kept alive until required in aerated glass aquaria. At laboratory the Al-Musaib Technical College, The collected fish represent *P. abu*. fish skin, fins and gills were firstly examined by the naked eye for detection of any macroscopically visible lesions. Samples of mucus were scraped gently from the skin, fins and gills, then spread on a clean slide and freshly examined under phase-contrast microscope for the presence of ectoparasitic protozoans. Parasite imaging by microcope camera. Parasites identification were done according to some major taxonomical references (Warren, 1986).

Results and Discussion

The inspection of the fishes from the Euphrates River at Al-Hilla city and Babil drainage network revealed the occurrence, two *Vorticella* were recorded for the first time in Iraq. These were: Species *Vorticella costata* (Sommer, 1951) and *Vorticella globularia* Müller, 1773 of the family Vorticellidae. The following is a brief description of these parasites.

Diagram showing classification of the parasites of *P. abu* of the present study.

Subkingdom: Protozoa Goldfuss, 1818 emend, von Siebold, 1845

Phylum: Ciliophora Doflein, 1901

Class: Oligohymenophora de Puytorac *et al.*, 1974

Subclass: Peritrichia Stein, 1859

Order: Peritrichida Stein, 1859

Suborder: Sessilina Kahl, 1933

Family Vorticellidae Ehrenberg, 1838

Genus: *Vorticella* Linnaeus, 1767

Species *Vorticella globularia* Müller, 1773

Species *Vorticella costata* (Sommer, 1951) Foissner, 1979

Vorticella globularia Müller, 1773

This parasite was reported from skin and gills of *P. abu* of the present study.

Diagnosis. The ciliated Protozoan *Vorticella globularia* Müller, 1773 was found on gills and skin, 161-163 µm long by 151-156 µm wide, spherical in shape with narrow peristomial lip; pellicular striations not visible; stalk up to 1002 µm long (Fig.1).

Habitat. Freshwater, forms pseudocolonies; occasionally epibiotic. The measurement of present parasite are in agreement with (Warren, 1986).

Vorticella costata (Sommer, 1951) Foissner, 1979

This parasite was reported from skin and gills of *P. abu* of the present study.

Diagnosis. This species was obtained from the gills and skin, 21-27 µm long by 16-19 µm wide and constricted below peristomial lip which measures 14 µm across; disc convex; infundibulum extends to one-third body length; contractile vacuole situated just below peristome and empties into ventral wall of infundibulum; macronucleus C-shaped and lies transversely across centre of zooid; pellicle has concave ribbing between distinct, widely spaced striations; stalk up to 151 µm long; telotroch pyriform with prominent epistomial membrane (Fig. 2). The measurement of present parasite are in agreement with Warren (1986). Members of the genus *Vorticella* are characterised by having a single Protozoa with a retractile stalk and ribbon-shaped macronucleus (Viljoeni and Van As, 1987). The present reported species conforms well to the genus characters. *Vorticella*, however, is a mostly free-living Ciliophoran but, when fish are stressed by adverse environmental conditions, this free-living Ciliophoran becomes a facultative ectoparasite (Basson and Van As, 2006; El-Tantawy and El-Sherbiny, 2010). The record of two *Vorticella* spp. represents the first record of this parasite in *P. abu* as well as the first record of the two species of *Vorticella* from fishes of Iraq.

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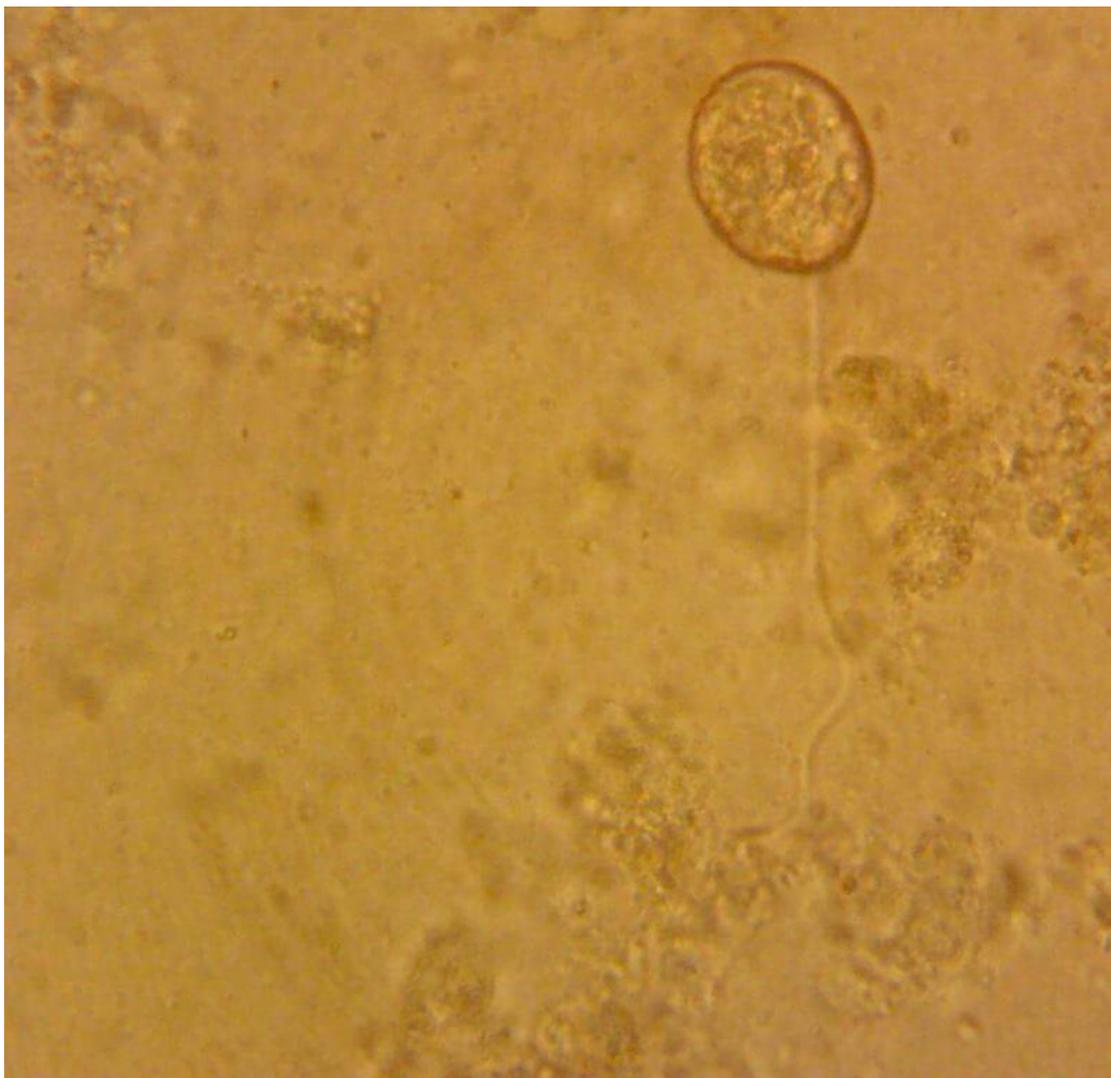


Fig. 1: *Vorticella globularia* Müller, 1773

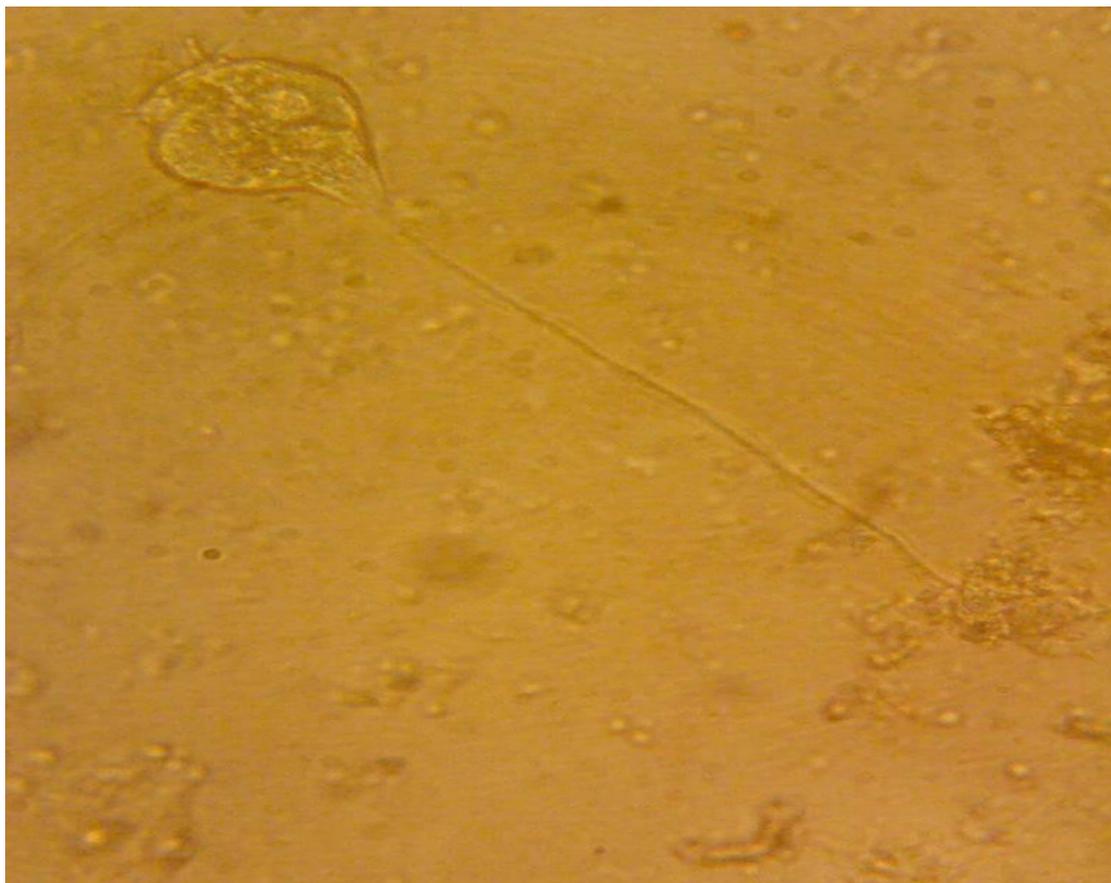


Fig. 2: *Vorticella costata* (Sommer, 1951)