

Prevalence and Occurrences of Flagellated Protozoan *Cryptobia helicls* in Garden Snail *Helix sp.*

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Abstract

The prevalence and morphological feature of the flagellated protozoan , *Cryptobia helicls* living in the reproductive system of garden snail, *Helix sp.* (Muller,1774) found in Erbil city - Kurdistan region, Iraq was investigated. The prevalence of *Cryptobia helicls* in garden snail *Helix sp.* collected in the spring of 2010 was found to be %20 this study is the first record of the occurrences of *Cryptobia helicls in the* garden snail, *Helix sp.* in Kurdistan region , Iraq.

Keywords: flagellated protozoan, garden snail *Helix sp.*, *Cryptobia helicls*, reproductive system, mollusca.

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Introduction

Studies of protozoa from the order Kinetoplastida (phylum Euglenozoa) yielded a large number of unexpected findings , probably more than for any other comparable group of protists [Vickerman, K. (1978). Donelson, J. E., Gardner, M. J. & El-Sayed, M. N. (1999)] Based on morphology, Kinetoplastida is traditionally divided in to two suborders-Bodonina and Trypanosomatina. [Vickerman, K. (1978), Vickerman, K. (1976), Lom, J. (1979), Kivic, P. A. & Walne, P. L. (1984)]. The Bodonidae consists of two families, the Bodonidae and the Cryptobiidae, whose members are free living species, as well as obligate and facultative parasites. [Wright, A.D. G., Li, S., Feng, S., Martin, D. S.& Lynn, D. H. (1999)]. Species of Bodonidae include free-living, commensally and ecto-and end parasitic species with two flagella and a larger kinetoplastidae.

The genus *Cryptobia sp.* was proposed by Leidy (1846) as biflagellate organism from the reproductive system of *Hilex spp.* (Barker, J. R. and Robin, J. (1987, The description of *Cryptobia helicls* by Leidy (1846) was based on material taken from the seminal receptacle of

three species of terrestrial pulmonata snails collected in the Vicinity of Philadelphia (KOZLOFF, E. N. (2004). *Cryptobia* sp. is not in all cases a blood parasite, the type species as stated lived in the reproductive system of a snail, and another, *Cryptobia intestinalis*, is an intestinal parasite, mostly, genus are parasites of the blood of fishes (Cunningham, A. A., Daszak, P., Macgregor, S. K., Foster, I., David Clarke, and Pearce-Kelly, P. (1996).

The prevalence of *Cryptobia* sp. in the garden snail *Helix* spp. (Muller, 1774) was (68.65%) in Turkey proposed by (GÖÇMEN, B. and GÜRELLİ. G. (2005) Because of their importance to human and animal health, trypanosomatida have been studied more intensively than bodonids, due to the absence and neglecting studies on the snail parasites in Kurdistan region in Erbil city this study was aimed to determine the prevalence with *Cryptobia* sp. among garden snails as first time.

Materials and methods

Thirty species of garden snail *Helix* sp. every time were collected in different regions of Erbil city, Iraq in (garden house, parks) in moist places between March and April 2010, snails were kept and studied for about two weeks each time in parasitology-invertebrate laboratory of Salahaddin university, Sciences Collage Biology Department.

Snails were housed in big glassed covered with transparent clothes the substrate of container was damp tissue paper with small amount of soil and different types of leaves were added, the enclosures were cleaned every day and the tissue paper was replaced providing substantial humidity that varies between the temperature range between 35°C, 38°C lighting is provided solely by natural day light.

The snails were anesthetized with chloroform then removed from their shells and reproductive organs were separated.

Initial parasitological examination was performed by direct microscopic examination of wet mount slide prepared from fresh fluid of reproductive system then examined under 400x power.

Results

Preliminary light microscopic observation revealed that *Cryptobia* sp. occurred as free swimming forms within the reproductive system fluid, traditionally, *Cryptobia* from the pulmonate reproductive system have been identified as *Cryptobia helici* Leidy (1846).

Living specimens from a single host cannot be characterized by much more than shape, present of two flagella, as shown in the Figure 1.

However, the larger flagellate resembles protozoa of the genus *Cryptobia* sp., members of which are known to parasitize fish and snails it will be important for the long term management of captive snails, to ascertain whether these protozoa are symbionts or potential pathogens.

Result of this research showed that flagellated protozoa *Cryptobia* sp. lives about 20% in reproductive system of land snail *Helix aspera* samples were observed at 400x power they were elongated cylindrical in shape, with presence of the flagella at both side.

The spring months (March and April) were choice for the present study due to the hidden of the snails in winter season and coming out from their hidden places for fertilization, by which the parasite transfer from one host to another through sexual mating

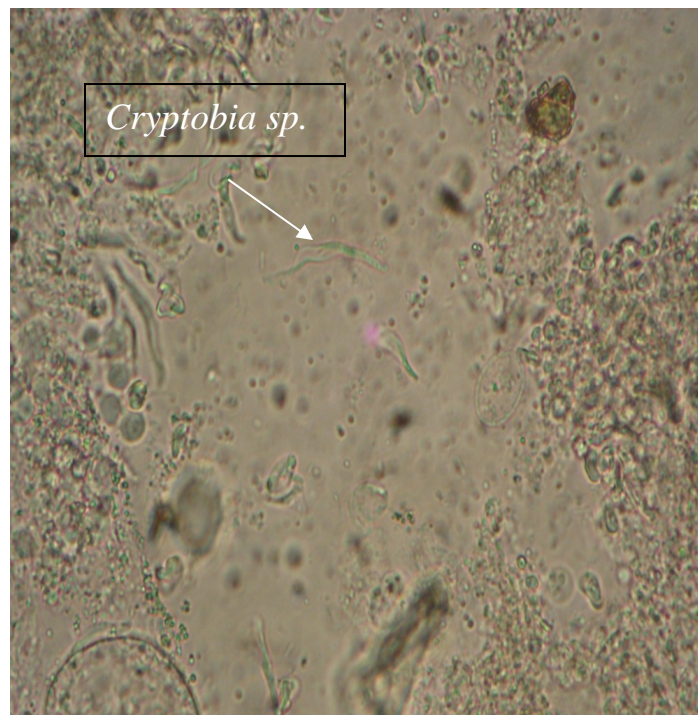


Figure1: Reproductive fluid of garden snail *Cryptobia* species, (400x).

Discussion

The present study has shown the occurrence of *Cryptobia helix* Leidy(1846), in the reproductive system fluid of garden snail *Helix Sp.*, a practice that might depend in part on the vague description done by Leidy and morphological nature of the organisms(Current, W. L., 1980).

The classification and morphological characters based on redescription of *Cryptobia helix* (Leidy) which done by (KOZLOFF, E. N. (2004) as shown in the figure (Vickerman, K.

(1978). The result of the present study was in agreement with (GÖÇMEN, B. and GÜRELLİ. G. (2005) as a first research done in our country on the same host site while disagreement with their prevalence rate which about (68.65%) in Turkey.

As revealed by present work that , the spring month (March, April), which was good time for questions and study of this parasite because garden snail (host) coming out from their hidden places for fertilization, by which the parasite transfer from one host to another through sexual mating and this was agreement with (GÖÇMEN, B. and GÜRELLİ. G., 2008).

It is probable that cryptobias in species of snails different from other species of *cryptobia* found in other snail species. (KOZLOFF, E. N., 2004).

Conclusion

The results conclude the occurrence of *Cryptobia helix* Leidy (1846), in the reproductive system fluid of garden snail *Hilex sp.* As a first record in our country Kurdistan region, Iraq and the prevalence of bioflagelated protozoan *Cryptobia helix* Leidy(1846) was determined as 20% in the garden snail *Hilex sp.*

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