



Hamacreadium mutabile, Linton 1910, Digentic trematode from liver of fresh water fish, *Clarias lazera* as a new host and site

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Abstract:

Examination of 100 liver of freshwater fish, *Clarias lazera*, from Ismailia Province, revealed that 2 out of 100 (2%) examined fish were infected with the digentic trematode, *Hamacreadium mutabile*. It is the first record from freshwater fish, *Clarias lazera* and first record from the liver. *Hamacreadium mutabile* characterized by large well developed ventral sucker, oblique, lobed testes and ovary, follicular vitelline gland extend from the level of ventral sucker to the posterior end of the body.

Key words: *Hamacreadium mutabile*, Digentic trematode, liver, *Clarias lazera*

INTRODUCTION

Nowadays, fish production and reproduction attract a great attention of many scientific researchers, because of the economic importance of fishes as a good and cheap source of animal protein and trace element. Gut helminthic parasites protect themselves from being digested by the hosts' digestive enzymes by production of appropriate inhibitors. The amount of inhibitors can depress fish metabolism rather than causing and obstruction of the digestive tract (Williams, 1967) and damage of mucosa (Reighenback-Klinke, 1974). In Egypt several authors attracted to the digenetic trematodes (Nagaty, 1937, 1940, 1941, 1942, 1948, 1954, 1956; Ramadan, 1983, 1985; Azza Raaef, 1990; Nesreen Mahmoud, 1990; Hassanine, 1992, 1995; Naheed et al., 2001; Youssef and Derwa, 2005). Linton in 1910 described *Hamacreadium mutabile* from *Neomaenis grisens* and *N. apodus*. McCoy (1930) recorded it from intestine and pyloric ceca of *Lutjanus griseus*. It recorded from *Serranus merra*, *Teuthis marmorata* and *Diacope fulviflamma* in the Red Sea by Nagaty (1941). In India, Hafeezullah (1971) recorded it from *Lutjanus rivlatus*. Manter (1963) recorded it from intestine of *Lethrinus sp.* in Fiji. In Egypt, it was recorded from *Lethrinus mahsena*, *L. nebulosus*, *Epinephelus chlorostigma*, *E. summana*, and *Anampses caeruleopunctatus* at Red Sea by Ramadan (1983). Saoud (1987) re-described *Hamacreadium mutabile* from *Lethrinus nebulosus*; *Epinephelus tauvina*; *Echelorostigma*; *Eareolatus* and *E. summana* from fishes of Arabian Gulf. Williams et al. (1985) recorded it from *Bathus lunatus*. Lucy Bunkley (1996) described it from intestine of *Lutjanus*

synagris and Sowjanya (2015) described it from *Lutjanus rivlatus* in Puerto Rico.

The aim of this work is to throw the light on *Hamacreadium mutabile* and its description as a first record from liver of freshwater fish, *Clarias lazera*. Comparison between the present material and other species of *Hamacreadium* is also discussed.

MATERIALS AND METHODS

One hundred liver samples from the freshwater fish, *Clarias lazera*, at Ismailia Province were cut into small parts in considerable amount of water, washed and liquidate then examined microscopically for presence of liver trematodes, the obtained trematodes were washed in 0.7% saline, put in between two glass slides with a drop of 70% alcohol until they relaxed, flattened with minimal pressure, fixed with formalin acetic acid alcohol fixative (FAA fixative) then washed it in water, stained with Carmine stains, dehydrated in ascending series of alcohol, cleared in clove oil and mounting in Canada balsam (Wessner, 1968). Specimen was drawn by using camera lucida. All measurements were presented in millimetres.

RESULTS

Examination of 100 liver of freshwater fish, *Claris lazera*, at Ismailia, Egypt revealed that 2 (2%) out of 100 examined fish were infected with digentic trematode, *Hamacreadium mutabile*.

Order: Plagiorchiida

Family: Opecoelidae

Genus: *Hamacreadium*

Species: *H. mutabile*, Linton, 1910 Site: liver-----Host: freshwater fish, *Clarias lazera*.

Morphology (Fig. 1, 2):

Elongate body measured, 3 mm in average, with rounded posterior end. Oral sucker is circular, ventral sucker larger than oral one, spherical located at the end of anterior third of the body and measured. 0.45 mm in average. There is no prepharynx, while the pharynx well developed, oval, elongated and muscular, measured 0.9-0.13x0.14 mm in average. Testes two in number, oblique, deeply lobed, ovary closed to ventral sucker, deeply lobed, anterior to left testis. Seminal vesicle conspicuous antero-dorsal to the acetabulum. Vitellaria are follicular and extended from the level of ventral sucker to the posterior end of the

body. All genitalia in the middle third under ventral sucker. Cirrus sac long, anterior to the acetabulum, containing tubular seminal vesicle.

DISCUSSION

Linton established genus *Hamacreadium* in 1910 for trematodes having oblique testes, preacetabular cirrus pouch, lobulated ovary and caeca terminating at the posterior end of the body, *Hamacreadium mutabile* always described from intestine of different marine fishes by several authors, **Linton (1910)** (*Neomaenis griseus* and *N.apodus*), **McCoy (1930)** (*Lutjanus griseus*), **Nagaty (1941)** (*Serranus merra*, *Teuthis marmorata* and *Diacope fulviflamma*), **Hafeezullah (1971)** (*Lutjanus rivlatus*), **Manter (1963)** (*Lethrinus sp.*), **Ramadan (1983)** (*Lethrinus mahsena*, *L.nebulosus*, *Epinephelus chlorostigma*, *E. summana*, and *Anampses caeruleopunctatus*); **Saoud (1987)** (*Lethrinus nebulosus*; *Epinephelus tauvina*; *Echlorostigma*; *E.summana*) **Williams et al. (1985)** (*Bathus lunatus*), **Lucy Bunkley (1996)** (*Lutjanus synagris*) and **Sowjanya (2015)** (*Lutjanus rivlatus*). The present material could be differentiated from *H. mutabile* created by **Linton (1910)** by non-lobed ovary in Linton specimens and from specimens recorded by **Sawjanya (2015)** by the position of the vetelline follicle reach to level of intestinal bifurcation and position of ovary separated from ventral sucker by uterine coils and agreed with that recorded by **Hafeezullah (1971)**, **Saoud (1987)** and **Saoud and Kawari (1986)**, except in some neglected difference, so the present material consider first record in freshwater fish and from

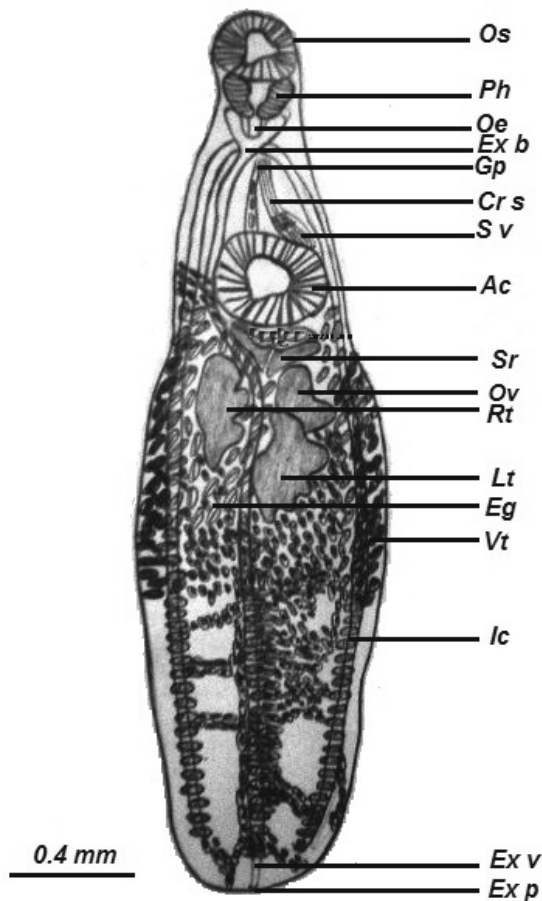


Figure 1: Diagram of *Hamacreadium mutabile* morphology

Abbreviations:

- | | |
|-------------------------|------------------------|
| Ac: Acetabulum | Lt; Left testis |
| Cs: Cirrus sac | Rt: Right testis |
| Eg: Eggs | Oe: oesophagus |
| Eb: Excretory bladder | Os: Oral sucker |
| Ex p: Excretory pore | Ov: Ovary |
| Ex v: Excretory vesicle | Vt: vitellaria |
| Ex b: Genital pore | Sr: Seminal receptacle |
| Ic: Intestinal caeca | |

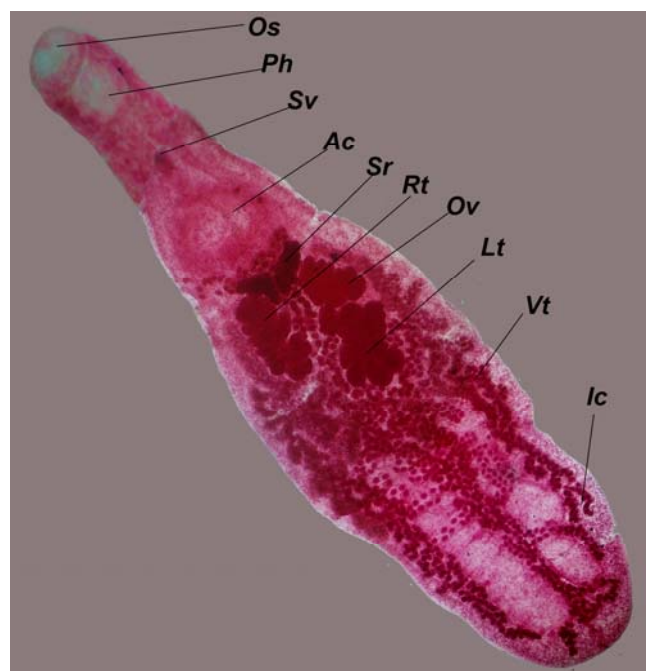


Figure 2: *Hamacreadium mutabile*

the liver. In respect to the other species of *Hamacreadium*: *H. egyptia* created by **Naheed et al. (2001)** having big ventral sucker in the middle of the body, unequal intestinal caeca and vitelline glands covering the entire body and not lobulated ovary. *H. diacopae* created by **Nagaty and Abd El Aal (1962)** having vitelline gland aggregated in two groups. *H. Khalili*, created by **Ramadan (1983)** having vitelline gland occupy from intestinal bifurcation to the posterior end.

Conclusion

From this study it was concluded that *Hamacreadium mutabile* is small whitish Opecoeliid trematode, having lobulated oplique testes infecting liver of freshwater fish (*Clarias lazera*). This considered as a first record in fresh water fish (*Clarias lazera*) and it's liver.

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