

**HELMINTH PARASITES AMONG NEW HOST FISH AT BENI-SUEF
GOVERNORATE WITH THE DESCRIPTION OF *DICHLIDOPHORA INDICA* AS
A FIRST RECORD IN EGYPT**

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ABSTRACT

Examination of four fish species from Beni-Suef Governorate, Egypt revealed the detection of two digenean trematodes) *Asteotrema impletum* and *Afromacroderoides* sp.), one species of nematodes (*Spinitectus allaeri*) were considered as new host record. On the other side, from *Tetradon fahaka*, the monogenea *Dichlidophora indica* was recorded and described for the first time in Egypt.

INTRODUCTION

Fresh water fish in Egypt attracted many authors to look for their parasitic affection, **Imam *et al.*, (1991); Sahlab (1982); Abu El Ezz (1988); Eid (1997) and others,** but unfortunately these studies are still meager regarding to the dramatic increase in the rate of parasitic population (**Ezz El-Dien, 1990**).

The aim of this work will be on add more data about some helminth parasites threatening a new host population record for some of the most popular fresh water fishes in Beni-Suef, Egypt.

MATERIAL AND METHODS

Helminthes were collected from 408 fish samples including *Tilapia* sp., *Bagrus bayad*, *Synodontis schall* and *Tetradon fahaka* obtained from fish markets, fishermen and fisheries at Beni-Suef Governorate during the period from September (1998) to August (1999). Fish were individually transferred in plastic bags to the laboratory. Gills, skin, fins, scales, eyes and all internal organs were examined macroscopically and microscopically,

the detected helminthes were immediately fixed and stored in formaline 10 % until staining with carmine and mounted in Canada balsam (Pritchard and Kruse, 1982). The parasites were measured and microphotographed.

RESULTS

Three species of helminth parasites were recorded from new host fish in addition to one monogenean species recorded for the first time in Egypt.

Morphological description and incidence of the detected parasites include:

I. Monogenea:

Family: *Dichlidophoridae* (Fuhrman, 1928)

Dichlidophora indica (Tripathi, 1959)

Host: *Tetrodon fahaka*.

Site: gills.

Incidence: 80.4 %.

Description:

The body measured 2.44 - 3.42 mm in length and 0.78 mm as maximum width. The prohaptor consisted of one pair of suckers each was 0.06 - 0.08 mm by 0.06 - 0.10 mm. The pharynx was markedly large measuring 0.11 - 0.15 mm x 0.11 - 0.17 mm. The intestinal caeca confluent posteriorly. The genital bulb was muscular, funnel-shaped with wide circularized rim. The common genital pore was immediately in front of the genital bulb at the region of intestinal bifurcation and with a coronet of 2 hooks of 0.02 mm long. The testes are post ovarian, numerous in number extending along the lateral fields among intestinal branches. Ovary was median in position, convoluted with the distal end directed backwards, the receptaculum seminis lies anterior to it.

The uterine follicles were co-extensive with the intestinal caeca, filling most of the body from the level of the genital pore to the opisthaptor. Vagina was absent.

The opisthaptor measured 0.5 - 0.64 mm in length with four pairs of nearly equal sessile clamps approximately of equal size each of 0.15 - 0.24 mm long by 0.11 - 0.19 mm in wide. The clamp skeleton consisted of three pairs of lateral sclerites and two median sclerites, one of which is a symmetrical (Fig. 1 a, b & c) and Fig. (2).

II. Digenea:

1. Family: *Allocreadidae* (Stossich, 1903)

Afromacroderoides sp.

Host: Tilapia sp.

Site: Intestine.

Incidence: 1.01 %.

Description:

The body was elongated, oval measuring 2.4 - 3.7 mm (3.05 mm) long and 0.5 - 0.76 mm (0.63 mm) width. The cuticle was covered with three rows of large spines of variable size. The oral sucker was subterminal 0.2 - 0.3 x 0.16 - 0.27 mm (0.25 x 0.21 mm), the prepharynx was short followed by muscular pharynx and long muscular oesophagus measured 0.25 - 0.45 mm. The intestinal caeca bifurcated at the middle distance between oral and ventral sucker, which are nearly equal in size (0.2 - 0.3 x 0.17 - 0.3 mm). The genital pore situated in front of the ventral sucker to the left of the median line. The cirrus sac was elongated, claviform and curved around the ventral sucker. The ovary situated on the right side of the median line measured 0.15 - 0.45 x 0.17 - 0.45 mm (0.3 - 0.31 mm) with the seminal receptacle below it. The testes were tandem in the posterior half of the body, the anterior measured 0.25 - 0.39 x 0.19 - 0.35 mm (0.45 x 0.27 mm) while the posterior was 0.22 - 0.4 x 0.28 - 0.45 mm (0.31 x 0.36 mm). The vitelline follicles filled the two lateral fields from the level of the ventral sucker to the posterior end of the body (Fig. 3).

2. Family: *Plagiorechiidae* (Luhe, 1901).

Asteotrema impletum, (Loss, 1899).

Host: Tilapia sp.

Site: Intestine.

Incidence: 88.2 %.

Description:

Small stout worms of a total length 0.99 - 2.3 mm (1.62 mm) and width of 0.4 - 0.66 mm (0.53 mm). The oral sucker was subterminal, rounded measuring 0.16 x 0.18 - 0.36 x 0.37 mm (0.26 x 0.27 mm) and it is twice the size of the ventral sucker. The subterminal mouth leads to a well developed spherical pharynx (0.05 - 0.12 x 0.03 - 0.1 mm) which was followed by long oesophagus. The intestinal caeca were simple and extend

to the level of the two testes which were smooth, more or less rounded and diagonal in position. The anterior one was 0.22 - 0.42 x 0.2 - 0.28 mm (0.32 x 0.24 mm) while the posterior was 0.22 - 0.33 x 0.18 - 0.3 (0.27 x 0.24 mm).

The single ovary was spherical and displaced to the right and measured 0.13 - 0.20 x 0.12 - 0.20 mm (0.16 x 0.17 mm). The seminal receptacle was large and oval-shaped. The uterus was found between the testes and the caudal end and filled with numerous thin shelled elongated eggs. The excretory vesicle was Y-shaped bifurcated behind the ovary (Fig. 4).

III. Nematodes:

Spinitectus allaeri, (Campara-Rouget, 1961).

Host: *Synodontis schall*.

Site: Stomach.

Incidence: 16.9 %.

Description:

The worm is characterized by its cuticle carried rings of minute spines which were longer on the anterior part of the body and smaller on the posterior part. The male measured 3 - 3.5 mm in length while the female was 3.9 - 5.6 mm. The vestibule was 0.057 mm. The oesophagus was 0.18 - 0.22 mm long. There was a narrow alae on the posterior end of the body. Four pairs of pre-anal papillae and 5 pairs of post-anal papillae. The spicules were unequal, the large was 0.06 - 0.07 mm while the short was 0.04 - 0.05 mm long. The tail was conical in shape. The vulva situated at a distance of 0.17 mm from the end of the body of the female (Fig. 5 a, b and c).

DISCUSSION

The present work investigated both external and internal helminthes which found to be parasitized on a new host fresh water fish in Beni-Suef Governorate, it was necessary to mention that previous sporadic works were done for surveying helminth parasites of fish in the same locality (**Abdel-Aziz, 1990** and **Abdel-Khalek, 1998**). *Tilapia* sp., *Bagrus bayad*, *Synodontis schall* and *Tetradon fahaka* fish was found to be a new host for certain helminth species.

Regarding monogenea, *Dichlidophora indica* was detected from the gills of *Tetradon fahaka* and identified according to **Price (1943)** and **Yamaguti (1963)**. The

infestation rate with this monogenea was considered high reached 80.4 %. It was worthy to mention that this is the first record of this monogenea among Egyptian fish *Tetradon fahaka*.

The recorded digenean trematode *Afromacroderoides sp.* from *Tilapia* species with low incidence (0.01 %) was identified according to **Khattab (1990)** from *Clarias lazera*, it was noticed that the present specimens were of large size and the cuticular spines were absent in most of the specimens. It was important to mention that *Tilapia sp.* is a new host for this digenea. From *Tilapia sp.* also *Asteotrema impletum* was recorded and found to be identical to that described from *Tetradon fahaka* by **Yehliang-Skeng (1959)**, also by **El-Naffar (1984)** from the same host in Lake Nasser, Aswan. It was noticed that the specimens recorded from *Tilapia sp.* was larger in size, this might be referred to that *Tilapia sp.* is considered as a new host for this parasite.

In the present study, *Spinitectus allaeri* was recorded from the stomach of *Synodontis schall* and identified according to **Negm El-Dien (1987)**, **Abu-El Ezz (1988)** from *Bagrus bayad* with a rate of 12.3 % and 12.87 % respectively, also by **Imam et al., (1991)** from the same host species. On the other, *Spinitectus allaeri* was previously recorded by **Bassiony (1991)** from *Clarias lazera*, at Edfina province and **El-Seify et al., (1997)** from the same host collected from Sharkia with an infestation rate of 0.3 % and 0.71 % respectively. It was found that *Synodontis schall* could be considered as a new host for the nematode *Spinitectus allaeri*.

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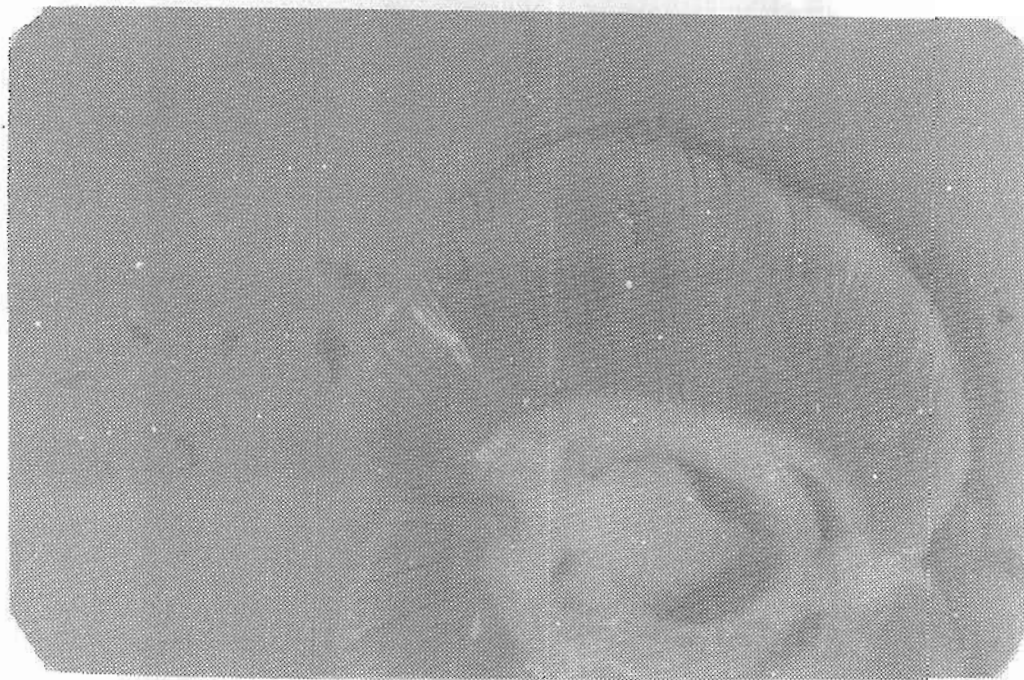


Fig. (2): Gills of Tetrodon Fahaka heavily infested with Dichlidophora indica

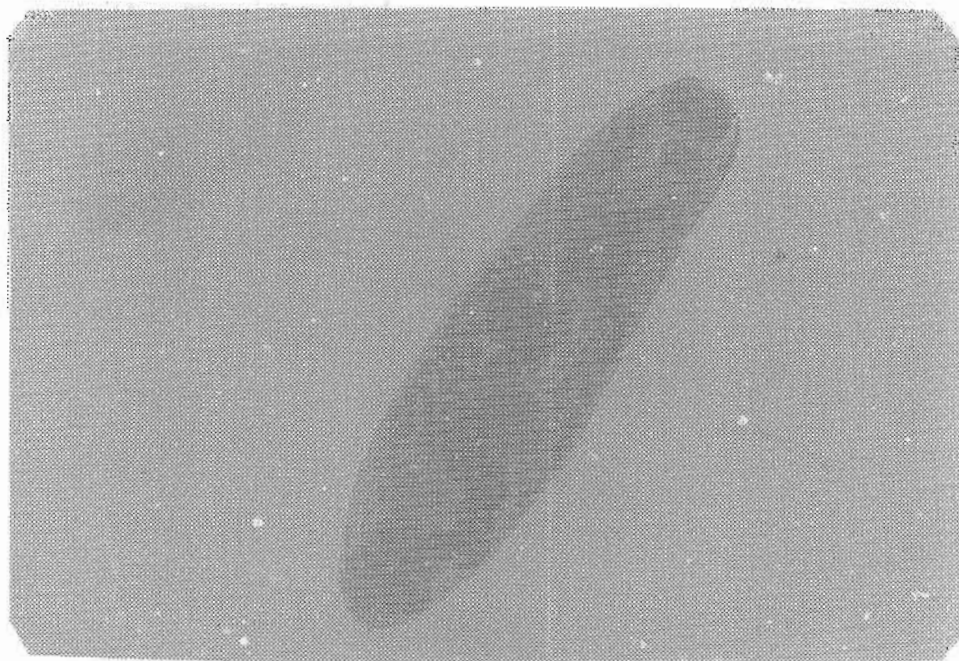


Fig. (4): Asteotrema impletum (x 40)

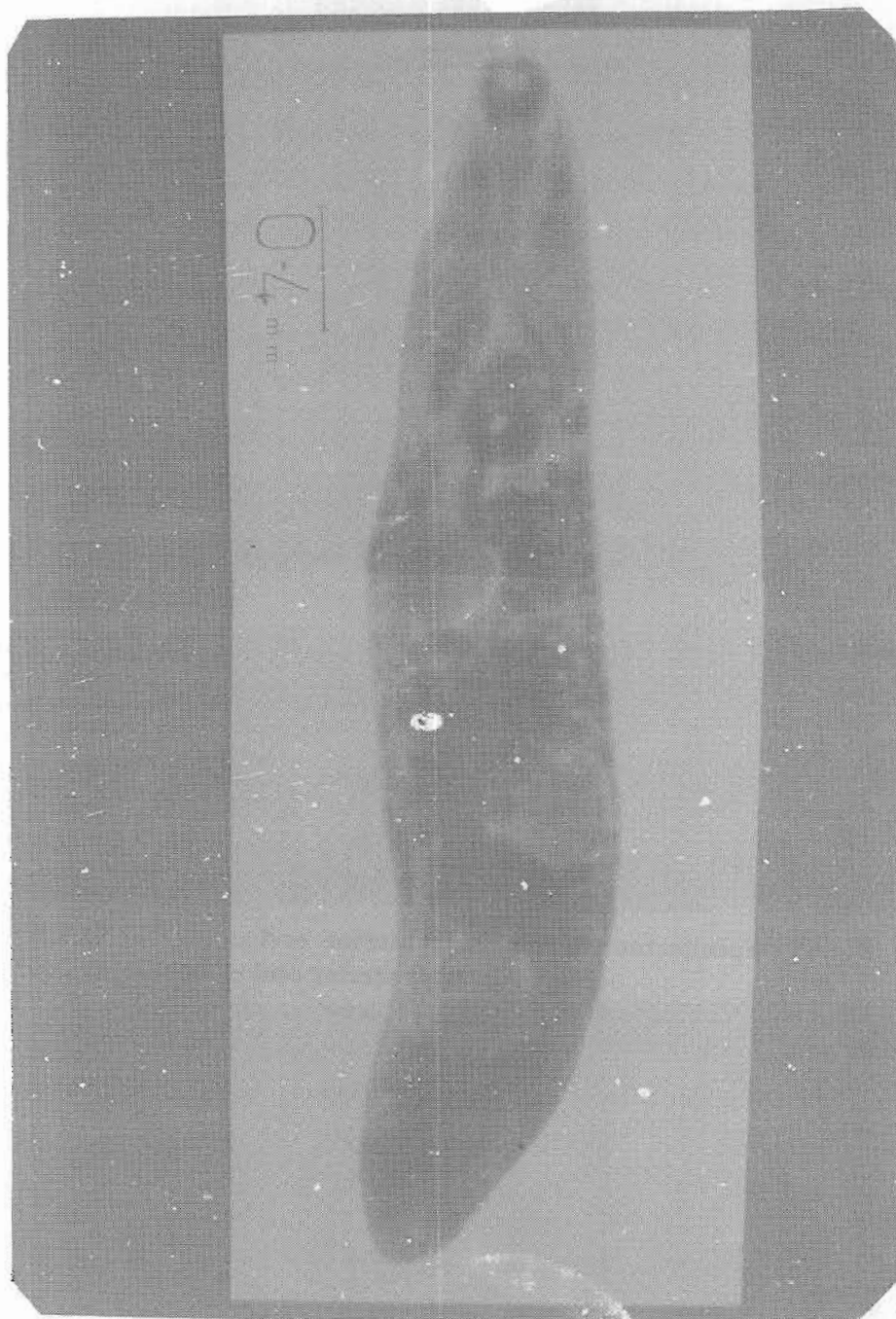


Fig. (3): Afromacrodroides sp. (x 40)

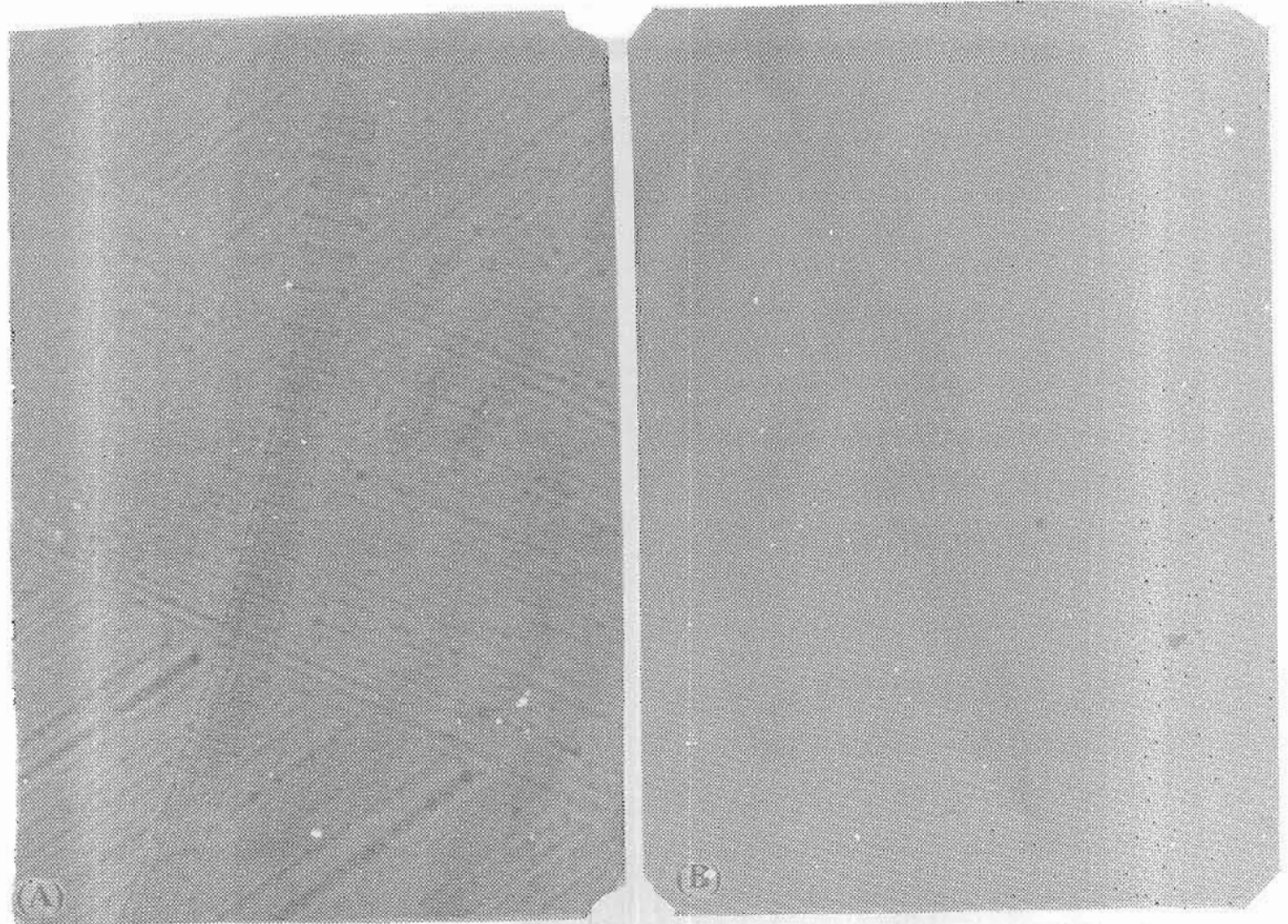
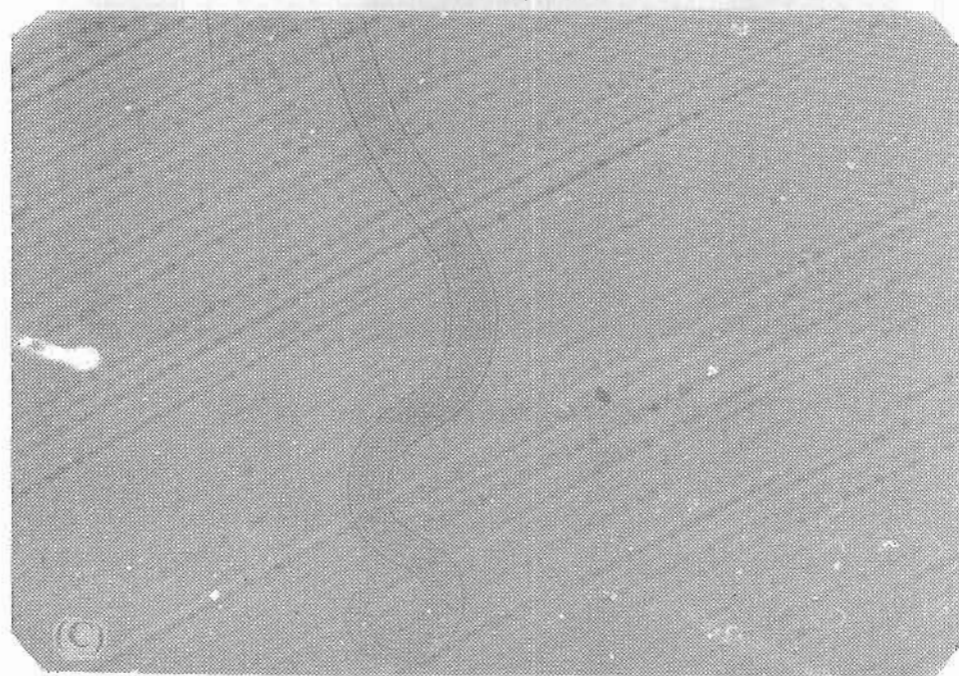


Fig. (5): *Spinitectus allaeri* a) Anterior end (x 100)
b) Posterior end of female (x 100)



c) Posterior end of male (x 100)

الملخص العربي

الطفيليات الديدانية لعائل سمكي جديد في محافظة بني
سويق مع توصيف دايكليدوفورا انديكا لأول مرة في مصر

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عند فحص أربعة أنواع من أسماك المياه العذبة في محافظة بني سويف وجدت
مصابة بنوعين من الديدان الورقية ثنائية العائل (أستيوتريما أمبليتم وجنس
أفرومكروديرويدس) ونوع واحد من الديدان الأسطوانية (أسبينيكتس اليري) وكانت
في عوائل جديدة.

بالإضافة إلى ذلك ، وجد نوع واحد من الديدان الورقية أحادية العائل وهو
دايكليدوفورا انديكا من سمك الفهقة وكانت لأول مرة تسجل في مصر.