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NEW TREMATODE *COLLYRICLUM FABA* (PLAGIOCHIIDA, COLLYRICLIDAE) DETECTED IN THE BIRDS OF UZBEKISTAN

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New Trematode *Collyriclum faba* (Plagiochiida, Collyriclidae) Detected in the Birds of Uzbekistan. Azimov, D. A., Akramova, F. D., Shakarbaev, U. A., Azimov, N. N. — Mature forms of *Collyriclum faba* (Bremser in Schmalz, 1831) were identified in subcutaneous cysts in the mountain whitethroat — *Sylvia althaea* Hume, 1878 (Passeriformes, Sylviidae) during a research expedition in an area adjacent to the Surkhan State Reserve in Surkhandarya Province of Uzbekistan on 18 June 2017. In the period between 10 and 18 June 2017, we examined a total of 29 mature birds and detected a skin trematode in one individual. The trematode was identified as *C. Faba*, and this was the first find in Uzbekistan. The mountain whitethroat was identified as a new host of this trematode.
Key words: trematodes, *Collyriclum faba*, parasites, fauna, *Sylvia althaea*, Uzbekistan.

Introduction

The unique species *Collyriclum faba* (Bremser in Schmalz, 1831) has been studied since quite long ago (Cole, 1911; Riley, 1931; Riley, Kernkamp, 1924; Farner and Morgan, 1944; Buttner, 1951). The authors of this article recorded it in a number of Passeriformes and Galliformes species.

Within CIS, *Collyriclum faba* was recorded in Russia — in the common chaffinch (*Fringilla coelebs*), common starling (*Sturnus vulgaris*), and white wagtail (*Motacilla alba*) (Bykhovskaya-Pavlovskaya, 1953), and in Armenia in the rock bunting (*Emberiza cia*) (Akhumyan, 1954). These data are everything that has been obtained in the territory of CIS.

Recent research has considerably broadened the range of definitive hosts for *Collyriclum faba* (Canaris, 1966., Kibler, 1968; Stunkard, 1971; Blankespoor et al., 1982, 1985; Kirmse, 1987; Grove et al., 2005; Literak et al., 1997, 2003, 2006, 2011, Heneberg et al., 2011, 2013; Mete et al., 2017). These trematodes have been recorded in a number of passerine species in Europe (Heneberg, Literak, 2013). The distribution geography of *C. faba* is also broadening. Currently, *C. faba* is recorded in wild and domestic birds in North, South and Central America, Europe and Asia. According to the authors of the abovementioned works, subcutaneous cysts concentrate in various parts of the body of an infected bird: at the base of the lower mandible, chin or throat, around the cloaca, belly or breast. Regardless of their location, trematodes *Collyriclum faba* in a cyst pose a serious threat to wild and domestic birds.

Material and methods

Cysts with mature trematodes from the family Collyriclidae Ward, 1917 collected from the skin of a mountain whitethroat (*Sylvia althaea*) in the Surkhan State Nature Reserve in Sukhandarya Province of Uzbekistan were used as research materials. Between 10 and 18 July 2017, 29 individuals of the mountain whitethroat were caught and examined using commonly accepted parasitological methods (Skrjabin, 1928; Ginetsinskaya, 1968). One of the 29 individuals proved infected with subcutaneous cysts. Extracted cysts were put in a 70° alcohol. Trematodes from the cysts were identified in the General Parasitology Laboratory, Academy of Sciences of Uzbekistan. In total, 80 individuals of the trematode were studied.

Traditional helminthological research methods were used to identify species.

Results and discussion

As we were studying birds in the mountainous area of the Surkhan State Reserve in Surkhandarya Province of Uzbekistan, we were attracted by an individual of the mountain whitethroat sitting on a boulder. It could not move or fly and did not react to our approaching. We had no difficulties to take it with the hand. After a short examination we discovered numerous cysts on its skin. The cysts, 4–8 mm in size each, were located on the bird's belly and back. There were about 40 cysts. The bird died on 19 June 2017 through generalised infection with the skin trematode. Dissection of the belly skin and cloaca revealed some mature oval-shaped trematodes. Each cyst contained two mature individuals of trematode which were yellow colour.

Helminthological dissection showed that the bird was extremely exhausted; the area of skin between the belly and cloaca was randomly deprived of plumage and had on it numerous individual cysts and their conglomerations which immobilised the bird's legs. The integrity of the abdominal part of the body and the cloaca was completely broken. The oval-shaped cysts had transparent walls. Each cyst contained 2 mature individuals of the trematode *C. faba,* which were oval in shape.

Since the mountain whitethroat — *Sylvia althaea* Hume, 1878 (Passeriformes, Sylviidae) — proved a new host for the trematode *Collyriclum faba* (Bremser in Schmalz, 1831), we thought it reasonable to provide an original description of this species (fig. 1).

Family Collyriclidae Ward, 1917
Genus *Collyriclum* Kossack, 1911
Collyriclum faba (Bremser in Schmalz, 1831)

H o s t: mountain whitethroat — *Sylvia althaea* Hume, 1878.

L o c a l i s a t i o n: skin (the parasite was enclosed in cysts).

Fig. 1. A mountain whitethroat (*Sylvia althaea*) with cysts infected with the trematode *Collyriclum faba* (Bremser in Schmalz, 1831). Surkhan State Reserve, Surkhandarya Province, south of Uzbekistan, June 2017 (photo by N. N. Azimov).

Location: Uzbekistan (mountainous area within the Surkhan State Nature Reserve, Surkhandarya Province).

Species description (based on original materials, 15 individuals of the trematode). Gentle, yellowish trematodes, rounded in shape, 4.98–5.68 mm (5.27 ± 0.07) long and 4.88–5.46 mm (5.19 ± 0.05) wide. The cuticle is covered in places with thin thorns. The dorsal surface has on it a well-developed oral sucker, 0.362–0.448 mm (0.399 ± 0.008) in diameter (fig. 2). The yolk glands are composed of 6–8 follicles, arranged symmetrically in the front half of the body. The intestine occupies most of the body's rear half. The seminal glands are oval, arranged symmetrically in the middle of the body, dorsally from the intestine's branches. The heavily laciniate ovary is located in the front part of the body. The strongly developed womb lies in the rear part of the body and has the form of a broad sack at the end. The eggs are numerous, 0.0200–0.0220 mm (0.0214 ± 0.0001) long and 0.0140–0.018 mm (0.0162 ± 0.0004) wide.

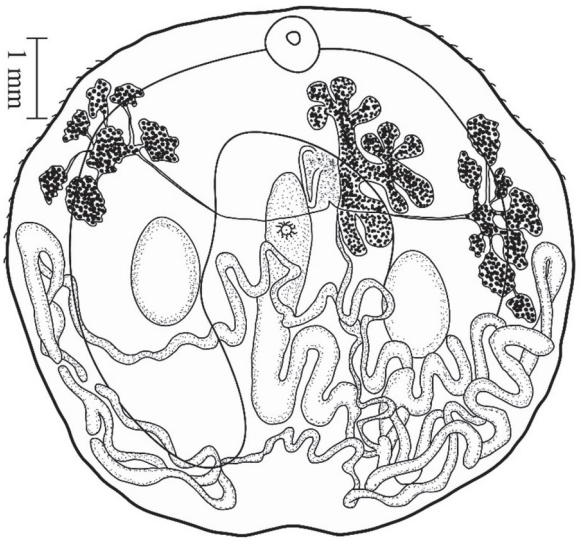

Fig. 2. *Collyriclum faba* (Bremser in Schmalz, 1831), extracted from subcutaneous cysts in an infected individual of *Sylvia althaea* Hume, 1878.

The trematode's morphometric parameters allowed us to identify it as *Collyriclum faba*.

Cysts and mature *Collyriclum faba* found in the mountain whitethroat (*Sylvia althaea*) and other bird species (Riley, 1931; Skrjabin, 1947; Stunkard, 1971; Blankespor et al., 1985; Kirmse, 1987; Literak et al., 2003, 2006, 2011; Mete et al., 2017) are almost identical throughout. The abovementioned slight variations may, probably, be attributed to the variability of some features depending on the host and geographical zone.

Thus, the research helped identify the mountain whitethroat as a new host for the trematode *C. faba*, which is able to cause infection and subsequent death of heavily parasitised birds, which quite corresponds with the data published in earlier works (Cole, 1911; Riley, 1931; Riley, Kernkamp, 1924; Buttner, 1951; Grove et al., 2005; Mete et al., 2017).

The presented material complement to a certain extent the available data on the trematode *C. faba* and expand its range.

The study of this unique species, *C. faba*, has a long history. Although the systematic position of the family Collyriclidae has been in the focus of parasitologists for over 100 years, this problem has not yet been solved. Opinions diverge and often contradict each other. This is confirmed by recently proposed trematode classifications, according to which the Collyriclidae are included in different taxons (Bray et al., 2008; Taxonomy Browser, 2020). This situation has resulted mainly from insufficiency of data on the full cycle of development, the morphology and biology of parthenogenetic generations and *C. faba*'s morphological variability in different hosts and geographic zones. These and other issues together with the contradictory opinions of various specialists require further research.

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