

## A Survey on Avian Cestodes from Iraq with Descriptions of Two New Species

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### Abstract

A new hymenolepidid cestode and two (including a new) dilepidid cestodes were removed from common starlings, *Sturnus vulgaris*, captured at Arbil, Arbil Province in Iraq, from November 1985 to March 1986. In possessing ten rostellar hooks 0.021–0.027 mm long, *Passerilepis acollaris* sp. n. is similar to but differs from *P. passeris*, *P. crenata*, *P. intermedius*, *P. spasskii*, *P. interrupta* and *P. schmidtii* in the shape of the rostellar hooks. *Dilepis longisaccata* sp. n. closely resembles but differs from *D. undula* (Schrank, 1788) Weinland, 1857 in smaller number of rostellar hooks and shorter rostellar hooks. And a known species, *Dilepis undula*, was also isolated from *S. vulgaris*.

**Key words:** Hymenolepidid cestode, Dilepidid cestode, starling, *Sturnus vulgaris*

### Introduction

The common starling, *Sturnus vulgaris*, used to come to Iraq from USSR and other European countries by the end of October and leave in April each year. Very little studies on the cestode fauna of *Sturnus vulgaris* have been made in Iraq and only one species of cestode, *Choanotaenia musculosa* (Fuhrmann, 1896) has been inadequately reported by Molan *et al.* (1986). The present paper deals with cestodes obtained from *Sturnus vulgaris* in Iraq.

### Materials and Methods

A total of 103 individuals of *Sturnus vulgaris* were collected at Arbil, Arbil Province from Nov. 1985 to March 1986 by the second and third authors. The cestodes obtained from the birds were fixed in 4% formalin and were sent to the first author for identification. The

cestodes were washed in running water over night to remove formalin and the features of scoleces and eggs were examined without staining. After being soaked in 45% acetic acid for about 5 hr for expanding, the strobilae were stored in 70% alcohol and they were stained with alcohol-hydrochloride-carmin, dehydrated in alcohol, cleared in xylene, and mounted in Canada balsam. Measurements are given in millimeters.

### Results

Cestodes obtained from *Sturnus vulgaris* are shown in Table 1. The cestodes found were as follows: *Passerilepis acollaris* sp. n., *Dilepis longisaccata* sp. n., *D. undula* and unidentified cestodes. The significant aspect in this study is the occurrence of double or triple infection of cestodes (Table 1). These infection states of cestodes show that *Sturnus vulgaris* is a migratory bird.

*Passerilepis acollaris* sp. n.  
(Figs. 1–4)

Of 15 common starlings, *Sturnus vulgaris*, captured at Arbil on November 11, 1985, three were found infected with a number of

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Table 1 Cestodes obtained from *Sturnus vulgaris* collected at Arbil Prevince, Iraq, Nov. 11, 1985 – Mar. 8, 1986

Date	Number of birds			Cestode species	Number of birds infected*
	examined	infected	%		
Nov. 11. 1985	15	12	80	<i>Passerilepis acollaris</i> sp. n.	3
				<i>Dilepis longisaccata</i> sp. n.	5
				<i>D. undula</i>	5
Dec. 6. 1985	25	24	96	<i>D. acollaris</i>	3
				<i>D. longisaccata</i>	10
				<i>D. undula</i>	11
				unidentified (not fully stained)	2
Jan. 12. 1986	23	20	87	<i>D. acollaris</i>	2
				<i>D. longisaccata</i>	12
				<i>D. undula</i>	9
				unidentified (not fully stained)	7
Feb. 9. 1986	20	18	90	<i>D. acollaris</i>	3
				<i>D. longisaccata</i>	10
				<i>D. undula</i>	6
				unidentified (not fully stained)	5
Mar. 8. 1986	20	16	80	<i>D. longisaccata</i>	9
				<i>D. undula</i>	7
				unidentified (juvenile)	3

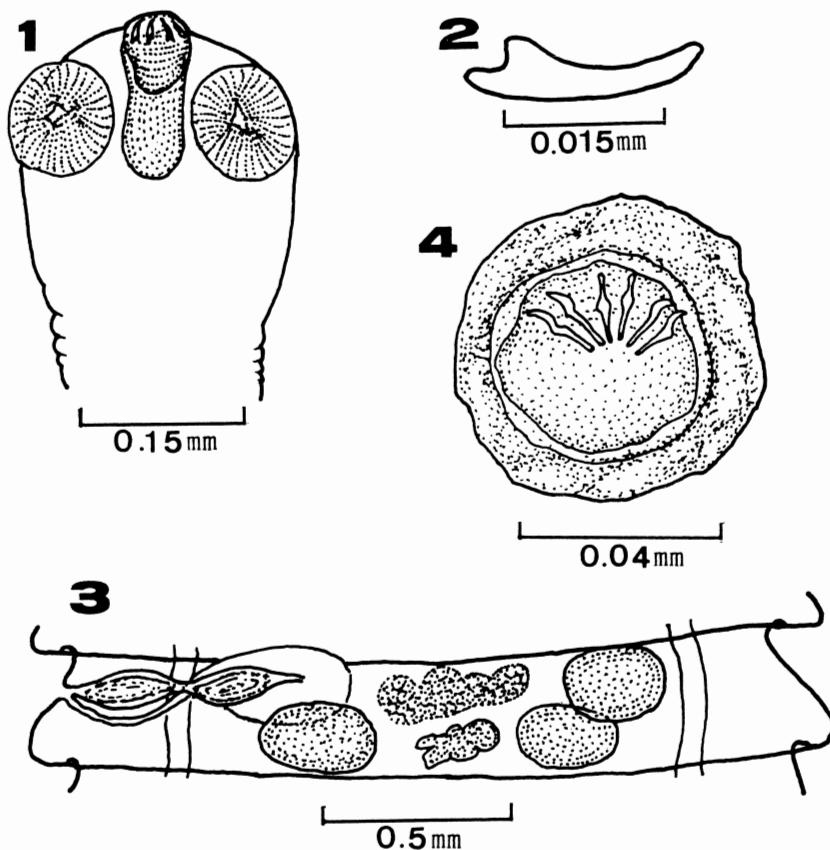
\* Some hosts were with double or triple infection.

specimens of this cestode.

Description: Small-sized hymenolepidid; mature worms 35–42 in length and 1.9–2.3 in maximum width. Metamerism distinct and craspedote, margins serrate. Proglottids wider than long. Scolex 0.259–0.262 long and 0.245–0.256 wide. Neck region absent. Suckers discoid, unarmed, 0.091 in diameter. Rostellum 0.056 long and 0.049 wide, armed with a single circle of 10 somewhat wrench-shaped hooks measuring 0.025 long. Hook handle long and strong; guard short and round at its end, shorter than blade; blade curved and sharp at its end.

Reproductive system protandrous; genital pores unilateral, located a little anterior to the middle of proglottid margins. Testes three in number, oval, 0.119–0.140 long and 0.077–0.084 wide, arranged in form of triangle, one poral in posterior region of proglottid between

osmoregulatory canals and vitelline gland, two aporal, one anterior and one posterior, both between osmoregulatory canals and vitelline gland. Cirrus pouch pyriform, 0.140–0.168 long and 0.042–0.056 wide, extending to osmoregulatory canals, occupied by internal seminal vesicle measuring 0.098–0.126 long and 0.049–0.056 wide. External seminal vesicle pyriform, 0.168–0.175 long and 0.070–0.084 wide. Ovary medial, multilobar, measuring 0.175–0.196 wide. Vitelline gland, irregularly lobate, directly posterior to ovary, 0.084–0.098 long and 0.049–0.056 wide. Vagina posteroventral to cirrus pouch, extending to median field, then enlarging, and forming voluminous seminal receptacle measuring 0.126–0.154 long and 0.056–0.070 wide, persisting conspicuously in gravid proglottids. Eggs oval or spherical, 0.060–0.063 by 0.053; outermost chorion thin, with smooth surface.



Figs. 1–4 *Passerilepis acollaris* sp. n.

1: Scolex, 2: Rostellar hook, 3: Mature proglottid, 4: Egg.

Onchospheres spherical, 0.035–0.046 by 0.035; embryonic hooks 0.014 long.

Type host: *Sturnus vulgaris* Linnaeus, 1758.

Site of infection: Small intestine.

Type locality and date: Arbil, Arbil Province, Iraq; Nov. 11, 1985.

Type specimen: Holotype: NSU Lab. Coll. No. 8805.

Remarks: By possessing 10 rostellar hooks 0.021–0.027 long, *Passerilepis acollaris* closely resembles *P. passeris* (Gmelin, 1790) Spasskii and Spasskaja 1954, *P. crenata* (Goeze, 1782) Sultanov and Spasskaja, 1959, *P. intermedius* (Clerc, 1906) Spasskii and Spasskaja, 1954, *P. spasskii* (Sudarikov, 1950) Spasskii and Spasskaja, 1954, *P. interrupta* (Rudolphi, 1809) Spasskii and Spasskaja, 1954 and *P. schmidtii* Deardorff and Brooks, 1978. However, the

present new species differs from any of the above-mentioned species in the shape of rostellar hooks (Fig. 5).

*Dilepis longisaccata* sp. n.

(Figs. 6–9)

On November 11, 1985, 15 *Sturnus vulgaris* were collected at Arbil. Five of them were found infected with a number of specimens of this cestode.

Description: Medium-sized dilepidid; mature worm length 42–54; maximum width 3.0–3.8. Metamerism distinct, proglottid margins serrate. All proglottids wider than long. Scolex 0.373–0.622 long and 0.788–0.884 wide, not demarcated from neck. Rostellum, partly introverted in all specimens, measuring 0.415–0.429 long and 0.207 wide, armed with a

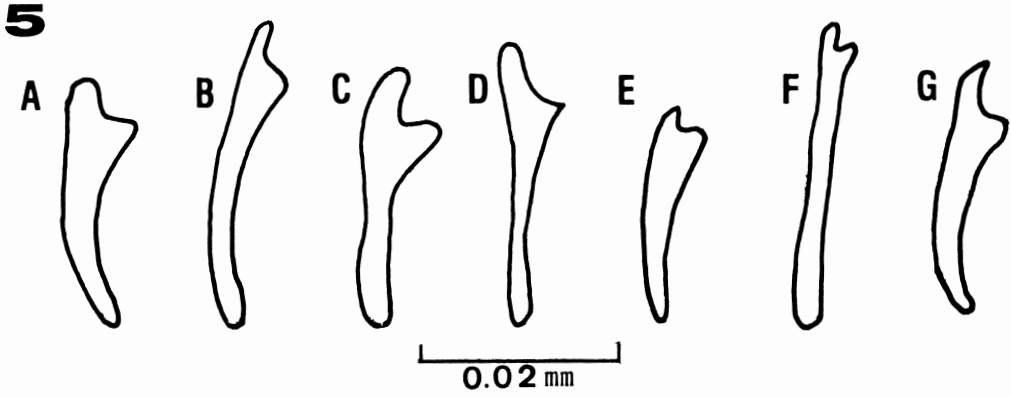
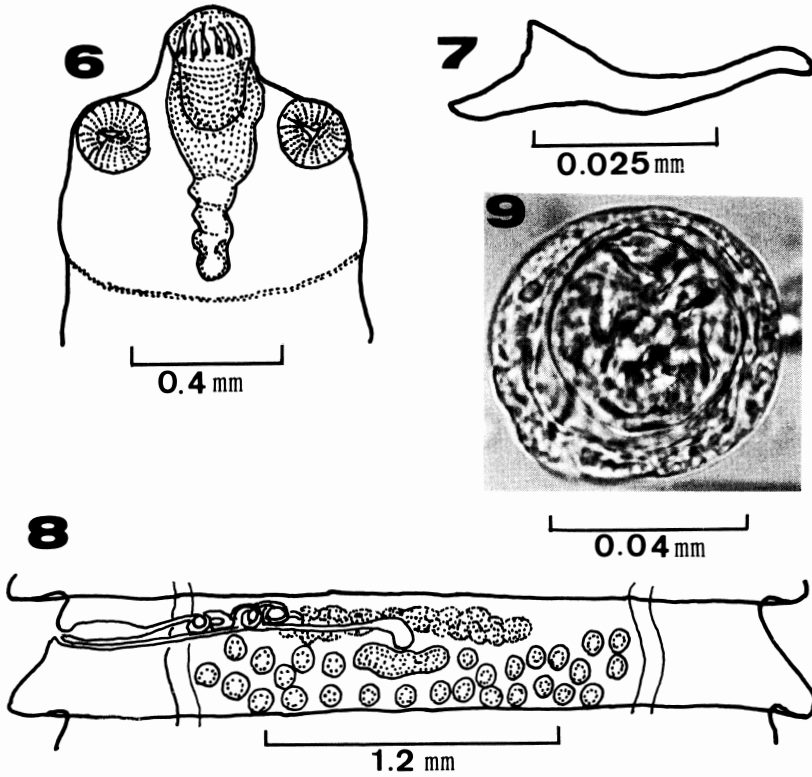


Fig. 5 Comparison of rostellar hook shapes among seven species of cestodes.

A : *Passerilepis schmidtii*, B : *P. passeris*, C : *P. crenata*, D : *P. intermedius*, E : *P. spasskii*, F : *P. interrupta*, G : *P. acollaris* sp. n.



Figs. 6-9 *Dilepis longisaccata* sp. n.

6: Scolex, 7: Rostellar hook, 8: Mature proglottid, 9: Egg.

double row of 32 hooks. The hooks of two rows similar in shape, but attached at different levels. The hooks of the anterior row longer, measuring 0.056; those of the posterior row 0.046. Handle of hook long, guard short, bluntly round at its end, shorter than blade; blade sharp at its end. Rostellar sac well-developed, deep and extending far beyond the base of suckers, measuring 0.526–0.820 long and 0.249–0.304 wide. Four suckers very muscular, round, measuring 0.221–0.249 long and 0.194–0.235 wide. Neck constricted immediately behind scolex.

Genital pores unilateral, located anterior 1/3 of proglottid margins. Testes 30–35 in number, packed in posterior field of proglottid, measuring 0.049–0.056 in diameter. Cirrus pouch elongated, 0.189–0.210 long and 0.035–0.049 wide, not extending to osmoregulatory canals. Cirrus slender, measuring 0.196–0.210 long. Vas deferens much coiled, located in anterior poral third of proglottid, and joining to posterior edge of cirrus pouch. External and internal seminal vesicles absent. Ovary well-developed, multilobar, transversely elongated, extending 0.56–0.63 across. Vitelline gland compact, irregularly lobate, immediately posterior to ovary, measuring 0.161–0.177 across. Vagina opening into genital atrium, extending to median field, parallel to cirrus pouch, then enlarging, and forming seminal receptacle measuring 0.126–0.140 long and 0.070–0.084 wide. Uterus sac-like, gradually enlarging and filling all available space in senile proglottids. Eggs spherical, 0.049–0.053 by 0.042–0.049, surrounded by four thin envelopes. Onchospheres 0.032–0.035 by 0.028–0.035, embryonic hooks 0.011 long.

Type host: *Sturnus vulgaris* Linnaeus, 1758.

Site of infection: Small intestine.

Type locality and date: Arbil, Arbil Province, Iraq; Nov. 11, 1985.

Type specimen: Holotype: NSU Lab. Coll. No. 8806; Paratypes No. 8807.

Remarks: About ten species belonging to the genus *Dilepis* Weinland, 1858 have been described from passeriforme birds (Polk, 1942, Schmidt, 1986). Of these, the present new

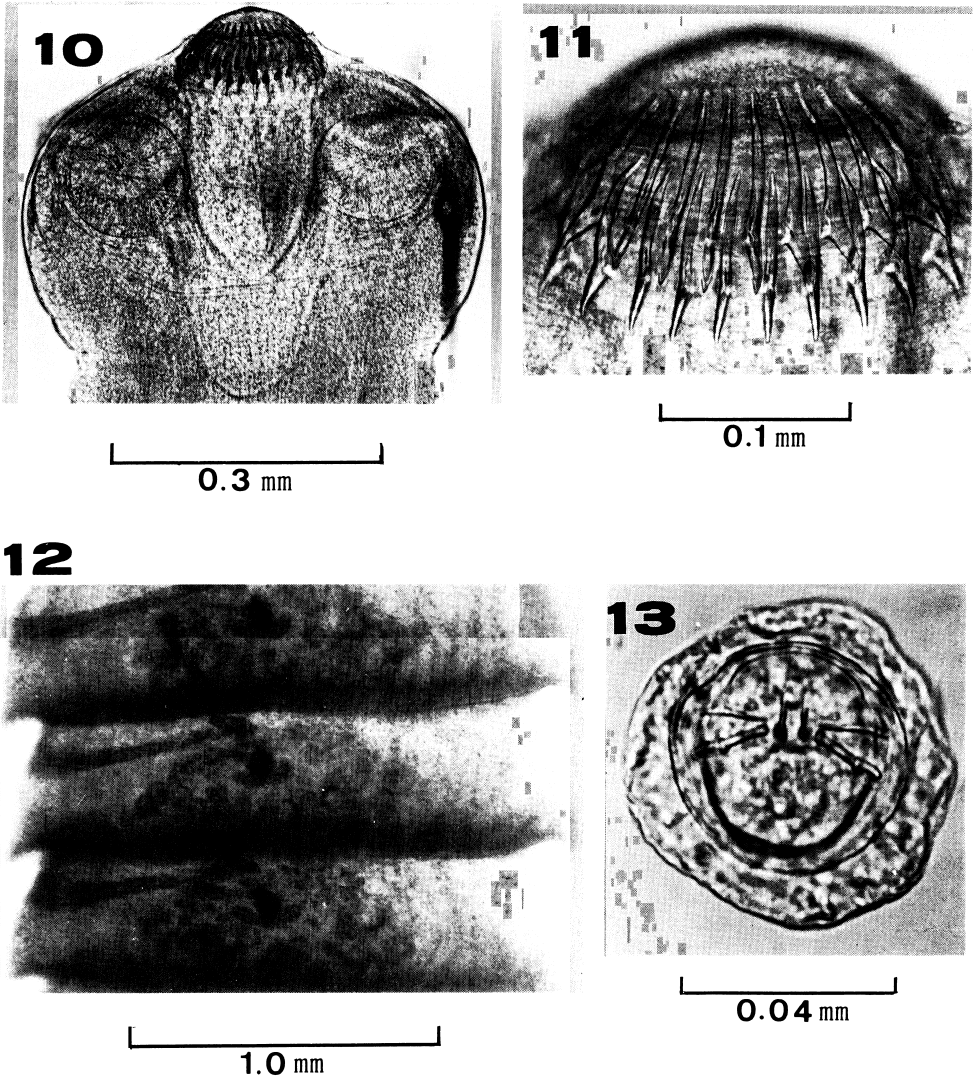
species closely resembles *D. undula* (Schrank, 1788) Weinland, 1857 from *Sturnus vulgaris* in the shape of rostellar hooks and the number of testes. However, it differs from *D. undula* in the following two characters: (1) smaller number of rostellar hooks (32 vs. 48–64); (2) shorter rostellar hooks (0.046–0.056 vs. 0.070–0.116).

*Dilepis undula* (Schrank, 1788) Weinland, 1857  
(Figs. 10–13)

Of 15 *Sturnus vulgaris* captured at Arbil, on November 11, 1985, five were infected with several specimens of the cestode. The examination of the present form disclosed that the cestode agrees in all morphological details with *Dilepis undula* from *S. vulgaris* in France (Fuhrmann, 1932).

Worm length 45–54; maximum breadth 2.1–2.8. Scolex 0.512–0.553 long and 0.719–0.773 wide. Rostellum 0.387–0.470 long and 0.194–0.207 wide, armed with a double row of 46 hooks. The hooks of each row similar in shape, but attached at different levels. The hooks of the anterior row larger, 0.098; those of the posterior row 0.085. Rostellar pouch well-developed, deep and extending far beyond the base of suckers, 0.560–0.664 long and 0.249–0.304 wide. Suckers discoid, 0.180–0.207 by 0.221. Neck constricted immediately behind scolex and widening again, measuring 0.35–0.48 long and 0.51–0.90 wide.

Genital pores unilateral, located anterior 1/3 of proglottid margins. Testes 12–20 in number, packed in posterior field of proglottid, measuring 0.035–0.042 by 0.035. Cirrus pouch elongated 0.097–0.110 long and 0.042–0.055 wide. Vas deferens strongly convoluted, located near anterior of proglottid on pore side, and joining to posterior edge of cirrus pouch. External and internal seminal vesicles absent. Ovary transversely acinus, extending 0.238–0.245 across. Vitelline gland compact, irregularly lobate, posterior to ovary, measuring 0.084 across. Vagina extending to median field, parallel to cirrus pouch, then enlarging, and forming seminal receptacle measuring 0.042–



Figs. 10–13 *Dilepis undula* (Schrank, 1788)  
 10: Scolex, 11: Rostellar hook, 12: Mature proglottid, 13: Egg.

0.050 long and 0.028–0.035 side. Gravid uterus occupying all available space of medulla. Eggs spherical, 0.063–0.074 by 0.053–0.076. Onchospheres spherical, 0.049–0.053 by 0.053–0.056; embryonic hooks 0.018 long.

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