

Original Research Article

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**The Parasitic Nematode *Physalopteroides venancioi* in the Snake  
*Platyceps ventromaculatus* (Gray, 1834) in Baghdad City, Central Iraq**

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Examination of the snake *Platyceps ventromaculatus* collected in Baghdad city for nematodes revealed the presence of 16 (3 males and 13 females) of the nematode *Physalopteroides venancioi* in the intestine of one specimen of *P. ventromaculatus* (25%), and one larva of *Physalopteroides* sp. isolated from gastric tissues of one *P. ventromaculatus*. Characters and measurements of *P. venancioi* were discussed and compared with those of other pertinent literatures. The present study provides information on infection rate, description and measurements of males, females and larva of *P. venancioi*. Reporting *P. venancioi* in the present study represents a new addition to Iraqi fauna as well as *P. ventromaculatus* as new host for it in Iraq.

**Introduction**

*Platyceps ventromaculatus* came in the list of Mahdi and George (1969) as *Coluber ventromaculatus*. Al-Barazengy *et al.*, (2015) listed it as *Platyceps (Coluber) ventromaculatus* (Gray, 1834). Its distribution extends from Palestine through Jordan, Iraq, Iran, Pakistan and India (Masood, 2012).

*P. venancioi* known to infect toads, amphibians, lizards skins and occasionally snakes of different families. It was described from gekkonid and agamid lizards as well as viperid snakes as definitive hosts (Baker, 1987).

To date, a few species of snakes have been examined for parasitic helminthes in Iraq : Molan and Saeed (1986) isolated the cestode *Diplopylidium nolleri* from Iraqi snakes; Rhaemo and Ami (1993) reported the cestode *Ophiotaenia europaea* from *N. tessellata*; Al-Hashimi (2006) recorded *Oochoristica* sp. and *Crepidobothrium* sp. ; Al-Barwari and Saeed (2007) isolated the cysticercoid of the cestode *Diplopylidium nolleri* from the snake *Spalerosophis diadema cliffordi*. Al-Moussawi (2010) isolated the nematode *Tanqua anomala* from *N. tessellata*. Al-Moussawi (2014 and 2015) Recorded respectively the cestode *O.*

*europaea* and the trematode *Telorchis assula* from *Natrix natrix* and *Natrix tessellata*.

There are no previous helminthic studies about the snake *Platyceps ventromaculatus* in Iraq. Therefore, reporting *Physalopteroides venancioi* from this snake in the present study represents a new addition to Iraqi fauna.

### Materials and Methods

The elementary canal of one from 4 specimens of *P. ventromaculatus* collected from Baghdad city on 2015, found infected with 16 adult nematodes of *P. venancioi* and 1 larva. The nematodes were removed, killed, cleaned, stored in 70% ethyl alcohol and cleared by lactophenol. Identification of nematodes was done according to the available keys and descriptions, adult nematodes were identified according to Fabio and Rolas (1974) and Vrcibradic *et al.*, (2000a). Basir (1949); Kelehear and Jones (2010) and Singh and Chaudhary (2011) were followed to identify the larval stage. Measurements were given in millimeter as range followed by the means in parentheses, calculated using ocular and stage micrometers. Photomicrographs were taken with digital camera Infinity lite-K100 attached to compound microscope Micros MCX100.

### Results and Discussions

The intestine of one specimen of four *P. ventromaculatus* (25%) found infected with sixteen adults (3 males and 13 females) of *P. venancioi*, and 1 larval stage were isolated from and gastric tissue.

*Physalopteroides venancioi* Figs (1 A; B; C; D; E; F and G)

Synonyms: *Thubunaea dactyluris* (Karve,

1938); *Thubunaea dactyluris* Karve, 1938 sensu Fabio and Rolas (1974) nec Karve, 1938 (Vrcibradic *et al.*, 2000 a).

### Description

White, cylindrical nematodes. The body with fine transversally striated cuticle. The anterior extremity is rounded and the posterior is tapered. Mouth opening with a cephalic collarette surrounding with two lateral rounded lips, the right lip with one mediolateral tooth, the left lip being smaller. Behind the bases of the lips there is a cuticular collar. Vestibule short, cylindrical with delicate walls. Oesophagus consists of anterior muscular and longer posterior glandular parts. Pair of spine-like cervical papillae locates immediately behind the nerve ring.

The posterior extremity of the mail is rounded terminating in a small conical process. Caudal alae well developed exhibiting a verrucose appearance. The male has 9 pairs of papillae of which, 4 pedunculated pairs precloacal, 1 pair adcloacal and 4 pairs poscloacal. The two spicules are unequal, the left spicule slightly larger than the right. The tip of the rail is ends in a blunt point. The tail of the female is short and conical. The vulva is nearer to the anterior body extremity. The embryonated eggs have thick shells.

As shown in Table (1) Most of the measurements of *P.venancioi* in the present study agree well with measurments of *Thubunaea dactyluris* Karve, 1938 of Fabio and Rolas (1974) which isolated from f the stomach of the lizard *Ameiva ameiva* (L.) in Brazil, taking into account some differences that might be due to differences in hosts or to the small sample size in the present study. Lent *et al.*, (1946) described *Physaloptera venancioi* from the amphibian host, *Bufo*

*paracnemis* in Paraguay. (Vrcibradic *et al.*, 2000 a) said that *Physalopteroides venancioi* is indistinguishable from *Thubunaea dactyluris* of Fabio and Rolas (1974) and they considered the latter as a synonym for the former.

***Physalopteroides* sp. Figs. (2 A, & B)**

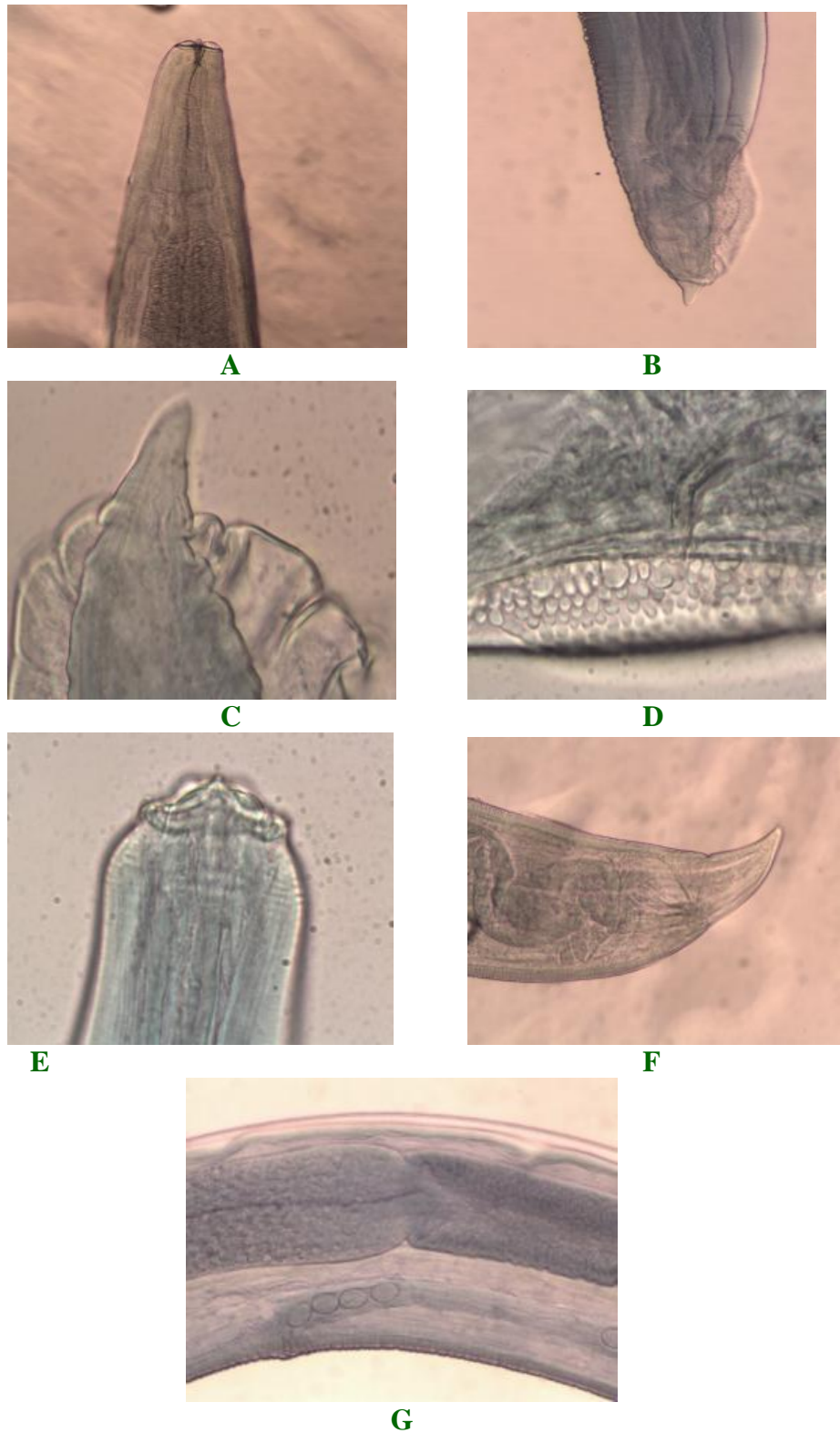
One larva of *Physalopteroides* sp. isolated from gastric tissues of one *P. ventromaculatus*. Kelehear and Jones (2010) had distinguished *Physalopteroides* larvae by the absence of a cervical collarette, the presence of a single, lateral, apical tooth and the attenuated tail. This agree with the features of the larva in the present study. The body is small, 3.76 long, 0.237 wide,

tapers slightly towards the tail. The oesophagus occupies a length nearly about 32% of body length. The muscular oesophagus is 0.205 long, 0.053 wide. Glandular esophagus 1.005 long, 0.05 wide anteriorly, 0.10 wide posteriorly. Nerve ring 0.033 long, 0.030 wide, locate at a distance of 0.22 from anterior extremity. Cervical papillae at a distance of 0.40 from anterior extremity. Tail 0.050 long. Singh and Chaudhary (2011) considered that the teeth pattern on lips and form of the stoma are important characters for the larvae of the family *Physalopteridae* which is characterized by having asymmetrical lips. It is worthy of mention here that this larva might belong to the same nematode species of the present study.

**Table.1** Measurements in millimeters followed by means in parentheses for males and females of *Physalopteroides venancioi* in the present study and other pertinent literatures

Measurements in mm	Lent <i>et al.</i> , (1946)	Fabio and Rolas(1974)	Vrcibradic <i>et al.</i> , (2000a)	Present study
<b>Male</b>				
<b>Total body length</b>	10.20-12.72	7. 60- 13.36 (10.48)	8.92	6.0 -6.6 (6.317)
<b>Maximum body width</b>	0.27-0.37	0.23- 0.52 (0.37)	0.25	0.21-0.23 (0.22)
<b>Vestibule</b>	–	0.019- 0.028 (0.023)	–	0.017-0.030 (0.022)
<b>Muscular esophagus length</b>	0.23-0.29	0.17- 0.30 (0.23)	0.22	0.160-0.253 (0.185)
<b>Glandular esophagus length</b>	1.70-2.00	1.45- 2.13 (1.79)	1.40	1.78-1.87 (1.83)
<b>Cervical papillae (from anterior extremity)</b>	–	–	–	0.22-0.26 (0.25)
<b>Excretory pore (from anterior extremity)</b>	0.28-0.29	0.22- 0.24 (0.21)	0.28	0.22-0.27 (0.23)
<b>Nerve ring (from anterior extremity)</b>	0.19- 0.26	0. 20-0.23 (0.21)	0.19	0.160 -0.180 (0.167)
<b>Nerve ring length</b>	–	–	–	0.033- 0.041 (0.037)

<b>Nerve ring width</b>	–	–	–	0.057-0.060 (0.058)
<b>Right spicule length</b>	0.060- 0. 10	0.057-0.072 (0.064)	0.08	0.050-0.062 (0.052)
<b>Left spicule length</b>	0.08-0.11	0.081 0.091 (0.086)	0.09	0.072- 0.075 (0.073)
<b>Tail length</b>	0.13-0.18	0.10-0.17 (0.13)	0.19	0.172-0.176 (0.175)
<b>No. of precloacal papillae</b>	4 pairs	4 pairs	4 pairs	4 pairs
<b>No. of adcloacal papillae</b>	1 pairs	1 pairs	1 pairs	1 pair
<b>No. of postcloacal papillae</b>	4 pairs	4 pairs	4 pairs	4 pairs
<b>Female</b>				
<b>Total body length</b>	14.82-16.49	14.85-22.29 (18.57)	12.24-14.28	8.85 - 12.10(11. 66)
<b>Maximum body width</b>	0.34-0.41	0.32-0.65 (0.48)	0.35-0.42	0.22-0.31 (0.295)
<b>Vestibule</b>		0.024- 0.033 (0.028)		0.012-0.037 (0.024)
<b>Muscular esophagus length</b>	0.27-0.31	0.24-0.37 (0.305)	0.28-0.30	0.120-0.388 (0.241)
<b>Glandular esophagus length</b>	2.10-2.40	2.24-3.22 (2.73)	2.04-2.10	1.83-2.83 (2.22)
<b>Excretory pore (from anterior extremity)</b>	0.34- 0.35	0.19 -0.29 (0.24)	0.34-0.35	0.182-0.290 (0.217)
<b>Cervical papillae (from anterior extremity)</b>	–	–	–	0.20-0.44 (0.30)
<b>Nerve ring (from anterior extremity)</b>	0.26-0.29	0.17-0.29 (0.23)	0.25-0.28	0.18-0.21(0.20)
<b>Nerve ring length</b>	–	–	–	0.030-0.063(0.06)
<b>Nerve ring width</b>	–	–	–	0.038-0.075 (0.057)
<b>Vulva (from anterior extremity)</b>	1.80- 1.90	1.14-2.09 (1.62)	1.82-1.89	2.07-4.21(3.02)
<b>Eggs length</b>	0.033-0.037	0.031- 0.040 (0.035)	0.036 – 0.039	0.025- 0.037 (0.035)
<b>Eggs width</b>	0.020-0.025	0.020- 0.026 (0.023)	0.024-0.025	0.018-0.025 (0.024)
<b>Tail length</b>	0.11-0.13	0.07-0.10 (0.08)	0.12- 0.13	0.128-0.183 (0.161)



**Fig.1** Photomicrograph of *Physalopteroides venancioi*

A- Anterior extremity of the male shows the tooth, two lips, nerve ring and the cervical papillae; B- Posterior extremity of male; C- The tip of the tail in male; D- Spicules and the verrucose appearance of the tail; E - Anterior extremity of the female shows the tooth and the cervical collarette; F - Posterior extremity of female; G - Eggs and vulva region.





**Fig.2** Photomicrograph of *Physalopteroides* sp.

**A-** Anterior extremity of the larva showing the lips and the mediolateral tooth.

**B-** Posterior extremity of the larva.

Although the life cycle of *P.venancioi* is unknown (Bursey *et al.*, 2005) but the physalopterines need insects as intermediate hosts, the final host takes infections from ingesting insects containing infective larvae (Anderson, 2000). *P. venancioi* preys on insects, frogs, toads, lizards, rodents, birds, rats, fishes and other snakes (Sharma and Vazirani, 1977 ; Firouz, 2005; Vrcibradic *et al.*, 2002 and Masood, 2012) and the lizards *Ameiva ameiva*, *Hemidactylus flaviviridis*, *Tropidurus torquatus*, *Mabuya macrorhyncha* and *M. agilis* (Baylis, 1939; Vrcibradic *et al.*, 2000a; 2000b; 2002). *P. ventromaculatus* gets infection with *P. venancioi* through ingesting the potential infected hosts.

To the best of my knowledge, reporting *P. venancioi* in the present study represents a new addition to Iraqi fauna as well as *P. ventromaculatus* as new host for it in Iraq.

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