

Original Research Article

The Cestode *Ophiotaenia europaea* odening, 1963 (Cestoda : Proteocephalidae) in two colubrid snakes from Baghdad city , Central Iraq

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ABSTRACT

Keywords

Cestoda,
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tessellata ,
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Ophiotaenia europaea Odening, 1963, found in the small intestines of two colubrid snakes: Grass snake, *Natrix natrix* (Linnaeus, 1758) and Dice snake, *N. tessellata* (Laurenti, 1768) collected in Baghdad city, central Iraq, with infection rates (77.77%) and (85.71%) respectively. The morphometric and meristic features for the cestode were presented and compared with pertinent literatures. This is the first report in Iraq for *O. europaea* in *Natrix natrix*.

Introduction

The two colubrid snakes: the grass snake, *Natrix natrix* and the dice snake *N. tessellata* have a large distribution range. They occurs from Europe, Africa and Asia (Baran and Atatur, 1998; Mebert, 2011). *N. tessellata* presents throughout Iraq, in the Basrah wetlands and in Euphrates, with remarkably wide distribution in lakes, channels and marshes (Khalaf, 1959; Mahdi and George, 1969; Mebert *et al.*, 2013). Recently, Afrasiab *et al.* (2012) reported the other host species, *Natrix natrix persa* from near the DIALAH bridge, Baghdad, Iraq.

Snakes, serve commonly either as definitive or intermediate hosts for a wide range of parasites. The cestode *Ophiotaenia europaea* uses the dice and

grass snakes as definitive hosts (Odening, 1963, Rhaemo & Ami, 1993; Shimalov & Shimalov, 2000, Yildirimhan *et al.*, 2007; Murvanidze *et al.*, 2008 and Youssefi *et al.*, 2010). Other reported hosts for this cestode are *Vipera berus* (Odening, 1963) and *Coluber jugularis* (Biserkov, 1996). It can be fatal for the host in the cases of heavy infections (Engelmann, 1970).

O. europaea was recovered from *N. natrix*, from Germany (Odening, 1963); Belorussian Polesye (Shimalov and Shimalov, 2000); Turkey (Yildirimhan *et al.*, 2007) and Iran (Youssefi *et al.*, 2010). In *N. tessellata* from Germany (Odening, 1963); Bulgaria (Biserkov, 1996) and Turkey (Yildirimhan *et al.*, 2007).

Little attention had been paid to the parasitic fauna of Iraqi snakes, and very few works were done on the parasites of the dice snake: Rhaemo and Ami (1993) who recorded the cestode *O. europaea* for the first time in Iraq, Al-Hashimi (2006) isolated two cestodes: *Oochoristica* sp. and *Crepidobothrium* sp., and Al-Moussawi (2010) recorded the nematode *Tanqua anomala*.

This paper aims to throw the light on the cestode *O. europaea* isolated from the small intestine of the grass and the dice snakes in Baghdad, central Iraq.

Materials and Methods

Eighteen of grass snake and twenty-eight of dice snake were collected at Baghdad city, central Iraq, during the period January to November 2012. All viscera were removed and each placed in Petri dish with normal physiological saline. The recovered cestodes fixed and stored in 70% alcohol and stained with acetocarmine, dehydrated and put on slides for examination. Cestode identification based on (La Rue, 1914; Joyeux and Baer, 1936). Measurements are in millimeters given as means followed by the range in parentheses, calculated using ocular and stage micrometers. Photos were taken with a digital camera Infinity lite-K100 attached to compound microscope Micros MCX100.

Results and Discussion

Ophiotaenia europaea Odening, 1963 (Fig.1 A; B; C; D)

Class *Cestoda*

Family *Ophiotaeniidae* Frese, 1963

Genus *Ophiotaenia* La Rue, 1911

Syn.: *O. racemosa* (Rud.1814) (Odening, 1963; Murvanidze *et al.*, 2008)

Description

Fourteen out of 18 of *N. natrix* and 24 out of 28 of *N. tessellata*, were found infected with the cestode *O. europaea* with infection rates (77.77%) and (85.71%) respectively.

The following description is based on 74 specimens of *O. europaea* collected from the two snakes, 21 from *N. natrix* and 53 from *N. tessellata*.

The strobila is white and thick, mean 183, range (170-220) long. Maximum width: 1 (0.9-1.0). The scolex is clearly distinguishable from strobila, 0.54 (0.45-0.65) in diameter. Suckers four, round to oval in shape, 0.28 (0.27-0.30) in diameter. Genital pore irregularly alternated, opening in the middle of the proglottid; Ovary bilobed, flattened, 1.50 (1.45-1.65) wide. Cirrus pouch measuring 0.42 (0.40-0.46) long and 0.19 (0.19-0.20) in diameter. Testes in two separated fields, they are 100-120 in number /segment. Vitellines distributed as a lateral line. Uterus possess about 20-25 pouches on each lateral side of midline. Eggs 0.024 (0.020-0.034) in diameter.

Most characters of *O. europaea* given in the present study are closely related to those given by La Rue (1914) under the synonym *O. racemosa* (Rudolphi) and to *O. europaea* of Youssefi *et al.* (2010).

The higher mean intensity of infection with *O. europaea* in *N. tessellata* compared to *N. natrix* in the present study agree with results of Yildirimhan *et al.* (2007).

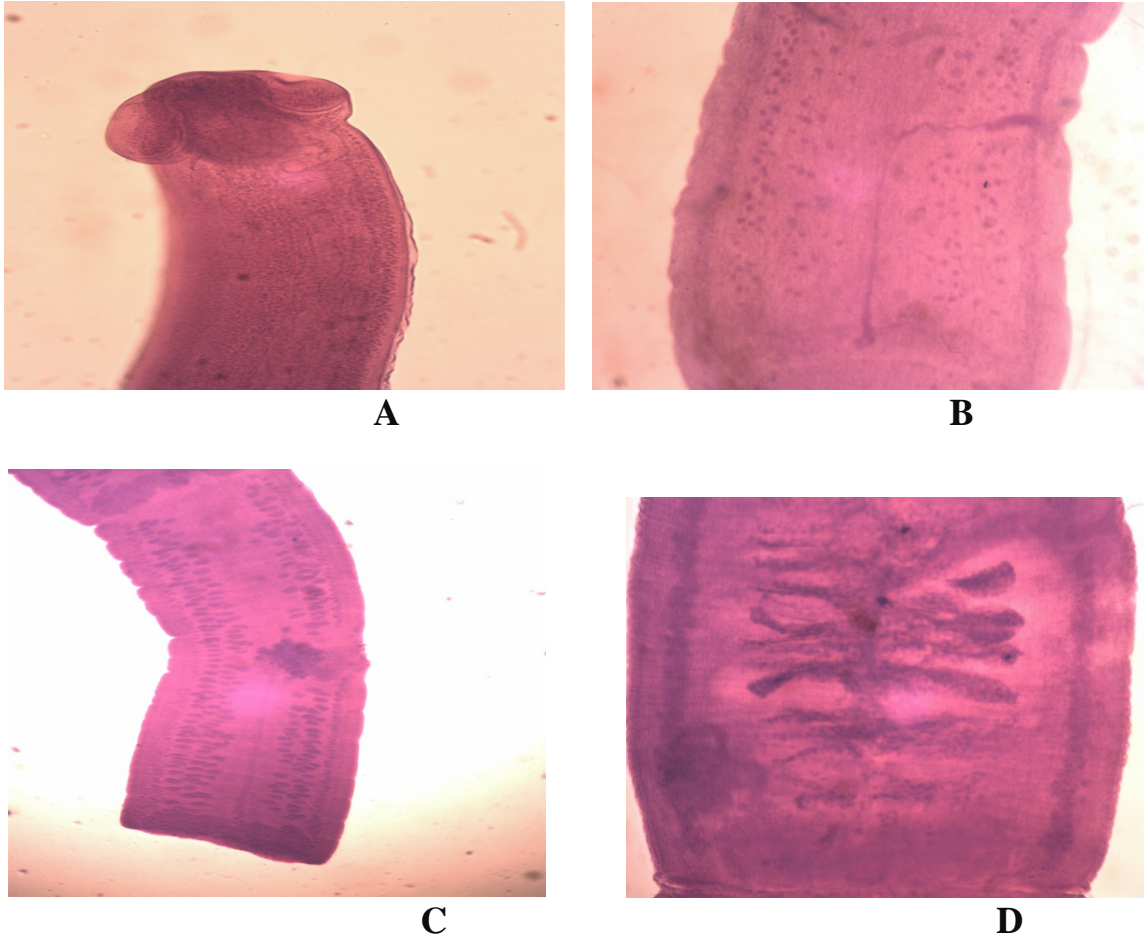


Fig. 1: *Ophiotaenia europaea* Odening, 1963.

- A- Anterior end.
- B- Immature segment.
- C- Mature segment
- D- Gravid segment.

It is relevant to indicate here that Baran and Atatur, (1998) had correlated the infection of these two snakes with this cestode to their diet similarity. Ingestion of adult and larval amphibians by the dice snake are probably responsible for the infection with *O.europaea* (Bakiev *et al.* , 2011).

To the best of my knowledge, *O. europaea* recovered from *N. natrix* is recorded here for the first time in Iraq.

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References

- Afrasiab , S.R.; Al-Ganabi, M.I. and Al-Fartosi , K. 2012 Snake species new or rare to theherpetofauna of Iraq. Herpetozoa 24 (3/4) Wien, 30: 179-181.

- Al – Hashimi, S.F.A. 2006. Parasitic worms of alimentary canal of some reptile species in Al-Ramadi city. Msc.thesis.Edu.Univ. Al-Anbar : 77pp. (in Arabic)
- Al-Moussawi , A.A. 2010. First record of *Tanqua anomala* (Linstow, 1904) from the Dice snake, *Natrix tessellata tessellata* (Laurenti, 1768) for Iraq. Bull. Iraq nat. Hist.Mus.Vol. 11, No.1:27-38.
- Bakiev A., Kirillov A. and Mebert K. 2011. Diet and Parasitic Helminths of Dice Snakes from the Volga Basin, Russia. Mertensiella, No.18: 325-329.
- Baran, I., and M. K. Atatur. 1998. Cited in Yildirimhan H. S., Bursey C.R. and Goldberg S. R. 2007. Helminth parasites of the grass snake, *Natrix natrix* and the Dice snake, *Natrix tessellata* (Serpentes: Colubridae), from Turkey. Comp. Parasitol, 74(2):343-354.
- Biserkov, V. Y. 1996. New records of platyhelminth parasites from snakes in Bulgaria. Comptes Rendus de l'Académie Bulgare des Sciences 49:73–75.
- Engelmann, W.E. 1970. in Mihalca, A. D. 2011
- Joyeux, C. and Baer, J. G. 1936. Faune de France, Vol. 30, Cestodes :613.
- khalaf , K. T. 1959. Reptiles of Iraq with some notes on the amphibians , Ar – Rabitta Press , Baghdad , : 96 P.
- La Rue G. R. 1914. A revision of the cestode family Proteocephalide. Illinois biological monographs, 1 : 1-350.
- Mahdi , N. and George , P.V. 1969. A systematic list of vertebrates of Iraq . Iraq Natural History Museum , Publication , No. 26 .University of Baghdad , Al-Awqat Press: 104 p.
- Mebert, K. (Ed.) 2011. The Dice Snake, *Natrix tessellata*: biology, distribution and conservation of a palaeartic species. Mertensiella, No.18: 456 p.
- Mebert , K., Masroor, R. and Chaudhry, M. J. I. 2013. The Dice Snake, *Natrix tessellata* (Serpentes: Colubridae) in Pakistan: Analysis of its Range Limited to Few Valleys in the Western Karakoram. Pakistan J. Zool., vol. 45(2):395-410.
- Mihalca, A. D. 2011. Parasitism in the Dice Snake (*Natrix tessellata*) – a Literature Review. Mertensiella , 18: 255-271.
- Murvanidze, L., Lomidze, Ts., Nikolaishvili ,K., Jankarashvili E. 2008. The annotated list of reptile helminthes of Georgia. Proceedings of the Institute of Zoology Vol.23. :54-61.
- Odening, K. 1963. Zum systematischen Status und zur Verbreitung der in europäischen Schlangen schmarotzenden Proteocephalidae (Cestoidea: Proteocephala) nebst Bemerkungen zur artungszugehörigkeit einer Madegassischen Proteo-cephalidae-Art aus Schlangen. Zeitschrift für Parasitenkunde.Vol. 23, Issue 3: 226-234.(English summary).
- Rhaemo, Z. I.F. and Ami, S. N. 1993. *Ophiotaenia europaea* (Cestoidea : Proteocephalidae) From Water Snake , *Natrix tessellata* in Iraq. Mu'tah journal for Research and Studies, Vol.8 (3):101-106.
- Shimalov V. V. ; Shimalov V. T. 2000. Helminth fauna of snakes (Reptilia, Serpentes) in Belorussian Polesye. Parasitol Res , 86: 340-341.
- Yildirimhan H. S., Bursey C.R. and Goldberg S. R. 2007. Helminth parasites of the Grass Snake, *Natrix natrix*, and the Dice Snake, *Natrix tessellata* (Serpentes: Colubridae), from Turkey. Comp. Parasitol, 74(2): 343–354.
- Youssefi, M.R. , Hoseini, S.H. , Mobedi, I. , Aho, M.B. and Rajabloo, M. 2010 . *Ophiotaenia europaea*, from *Natrix natrix* of North of Iran. World Journal of Zoology 5 (4): 272-274.