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RAILLIETINA ECHINOBOTHRIDA (MEGNIN,1881) (CESTODA: CYCLOPHYLLIDEA) FROM THE HOUSE SPARROW *PASSER DOMESTICUS BIBLICUS* HARTRET, 1881 COLLECTED IN BAGHDAD CITY, CENTRAL IRAQ

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ABSTRACT

The widespread house sparrow *Passer domesticus biblicus* has a close association with humans and inhabits almost all ecosystems near human settlements in Iraq. It is exposed to different kinds of parasites in its habitats. Examining of house sparrow for the cestode parasites revealed that 25 specimens of 56 were infected with *Raillietina echinobothrida*. Intensity among infected male and female hosts with this cestode and its description is provided and discussed. The present finding constitutes the first record for this parasite in house sparrow in Iraq.

INTRODUCTION

The house sparrow is a synanthropic bird species of historical commensal relationship with man and has followed his colonization of the majority of the earth (Vincent, 2005). The House Sparrow is primarily associated with areas modified by humans including agricultural land, villages and urban centers (Summers-Smith, 1988; Lowther and Cink, 1992). It occurs naturally in most of Europe, the Mediterranean region and much of Asia (Summers-Smith, 1988;Vincent, 2005). It was accidentally or intentionally introduced to many regions including Australia, Africa and the Americas may be because of its potentiality to adapt with a wide range of new conditions (Summers-Smith, 1988; Martin and Fitzgerald, 2005) and the extent of its range made it the most widely distributed wild bird on the planet (Anderson, 2006). This will contributes to much more exposure to new parasites as well as its role in spreading new parasites into new regions and hence could affect the native fauna.

In Iraq, it inhabits almost all ecosystems near human settlements except the deep interior of deserts (Allouse, 1962; Al-Dabbagh and Jiad, 1988; Salim *et al*., 2006). Works on parasites of this species are rather few and fragmentary including that of Shamsuddin and Mohammad (1980), Mohammad (1990) and Mohammad and Al-Moussawi (2012a) on haematozoa; Abdulabas (2005) and Mohammad and Al-Moussawi (2012b) on helminthes.

The aim of the present study is to provide examination results about the cestode helminthes infect the house sparrow in Baghdad city, central Iraq.

MATERIALS AND METHODS

A total of 56 individuals of house sparrow (36 males and 20 females) were collected in Bab-Al-Muadham, Baghdad city by mist net during the period from March to December 2011. Birds were immediately dissected and the intestines were searched carefully for the cestode

helminthes. The recovered cestodes were cleane, stained with acetocarmine, passed through a series of alcohol concentrations 70, 80, 90 and 100%, and mounted in Canada balsam. Micrographs were taken with digital camera (Infinity lite-K 100) attached to compound microscope (Micros MCX 100). All measurements are in millimeters unless otherwise stated and expressed as mean followed by range in parentheses. Identification of the cestode was possible following the available keys and descriptions of Wardle and McLeod (1952), Yamaguti (1959), and Sawada (1965).

RESULTS

Results of examining 56 house sparrows for the cestode parasites would show that 25 specimens (44.6%) were infected with one cestode species, *Raillietina echinobothrida* (Megnin, 1881). Cyclophyllidea, Davaienidae. (Figs. 1-3).

Description: Scolex width 0.189 (0.137-0.292), rostellum diameter 0.095 (0.025-0.128) with a double crown of 200-250 hooks, each hook of 0.010-0.013 long, sucker diameter 0.089 (0.050-0.156) with 8-10 circles of small spines, neck width 0.162 (0.100-0.240), strobila length 28.378 (16.00-42.48), width 0.903 (0.450-1.560), genital apertures unilateral, length of cirrus pouch 0.096 (0.050-0.162), testes number 22 (20-30), egg sacs differ in the number of eggs 6 (2-14), egg diameter 6.8 µ (2-9) with a hexacanth onchosphere of length 4-6µ.

The general intensity of the cestode among male and female hosts is 6.24 (1-35). Among the infected hosts, there are 17 males with intensity of 6.06 (1-35) and 8 females with intensity of 6.63 (1-35).

DISCUSSION

Recording of one species and probably another unidentified one which belongs to the same genus only, is mostly related to collection of all examined in one point at one area, a garden in Bab Al-Muadham District, Baghdad City, a totally intense human settlement region, which seems not offering the suitable conditions for different kinds of parasitic helminth species to thrive. Marzluff (1997) suggested that urban settlement can change ecosystem processes, habitat, food, predators, competitors, and disease. Another factor may play role in this, is the rich food supply in human settlements which has an effect on the ability of nestlings to withstand parasitism (Vincent, 2005). However, apparently another species of *Raillietina* was recovered from the intestine of one host. The specific identification could not be possible due to distortion of specimens.

Although the house sparrow is frequently reported to be infected with a wide variety of cestodes, for example; Sawada (1965) recorded *Raillietina neplais*, Baugh and Saxena (1976) found five species of cestodes and Saxena and Baugh (1978) who found two cestodes. *Raillietina echinobothrida* was not reported in all of these papers and most of the material examined in the previous records were collected from suburban and rural areas. However, to the best of our knowledge, this is the first record for this parasite in *Passer domesticus biblicus* in Iraq.

Results show that the intensities of infection with *R. echinobothrida* in male and female hosts are almost the same. This may, partly at least, related to biparental care nature of incubation in house sparrow (Bartlett et *al*., 2005) which needs both mates to exert almost equal efforts in incubation period as well as to be exposed for the same parasite vector during the feeding of nestlings.

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LITERATURE CITED

Abdulabas, S. K. 2005. Identificational study of parasitic fauna on three species of Passeriformes family and its physiological effects in Al-Najaf Al-Ashraf governorate. M.Sc. thesis , college of science, University of Kufa, 85pp.

Al-Dabbagh, K.Y. and Jiad, J.H. 1988. The breeding biology of the House Sparrow in central Iraq. Intern. Stud. Sparrows 15: 22-43.

Allouse, B. E. 1962 Birds of Iraq vol. 3 (Passeriformes). Ar-Rabitta Press, Baghdad, 288pp.

Anderson, T. R. 2006 Biology of the Ubiquitous House Sparrow: from Genes to Populations. Oxford: Oxford University Press.

Bartlett, T. L., Mock, D. W. and Schwagmeyer, P. L. 2005 Division of labour: Incubation and biparental care in house sparrows (*Passer domesticus*). The Auk, 122(3):835–842.

Baugh, S. C. and Saxena, S. K. 1976 On cestodes of *Passer domesticus* I. *Choanotaenia*, *Raillietina* and *Proparuterina*. Angew Parasitol.,17(3):146-60.

Lowther, P. E. and Cink, C. 1992. House Sparrow. A. Poole, P. Stettenheim, and F. Gill (eds). The Birds of North America. No. 12. The American Ornithologists' Union and The Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, USA.

Martin, L. B., II, Fitzgerald, L. 2005 A taste for novelty in invading house sparrows, *Passer domesticus*. Behavioral Ecology 16 (4): 702–707.

Marzluff, J. 1997 Effects of Urbanization and Recreation on Songbirds. Songbird Ecology in Southwestern Ponderosa Pine Forests: A Literature Review. (Block, M. and Finch, D. M.). General Technical Report RM-GTR 292. (USDA Forest Service).

Mohammad, M.K. 1990 Blood parasites of some Iraqi wild birds. Iraqi J. Sci., 31(Supplement):31-39.

Mohammad, M. K. and Al-Moussawi, A. A. 2012a Blood parasites of some Passeriform birds in Baghdad ardea, Central Iraq. Bull. Iraq nat. Hist. Mus.,12 (1): 29-36.

Mohammad, M. K. and Al-Moussawi, A. A. 2012b Gizzard nematodes of the house sparrow *Passer domesticus* Hartret collected in Baghdad City, Central Iraq. Bull. Iraq nat. Hist. Mus., 12 (2): 25-37.

Salim, M.A, Porter, R.F. Christensen, S. Schiermacker-Hansen, P. and Al-Jbour, S. 2006 Field Guide to the birds of Iraq. Amman: Nature Iraq & BirdLife International. (In Arabic).

Sawada, I. 1965. On the genus *Raillietina*. Fuhrmann 1920 (II). J. Nara Gakuge "Iniv. (Nat.). (13): 5-38.

Saxena, S. K., Bauch, S. C. 1978 On cestodes of *Passer domesticus* II. *Anonchotaenia* and *Mathevotaenia*. Angew Parasitol.,19(2):85-106.

Shamsuddin, M. and Mohammad, M.K. 1980 Haematozoa of some Iraq birds with description of two new species, *Haemoproteus pterocles* and *Leucocytozoon nycticoraxi* (Protozoa: Haemosporina). Bull. Nat. Hist. Res. Centre, 7(4): 111-154.

Summers-Smith, J. D. 1988. House Sparrow. Pages 114-162 *in* The Sparrows. T. & A. D. Poyser Limited, Calton, England.

Vincent, K. E. 2005 Investigating the causes of the decline of the urban House Sparrow *Passer domesticus* population in Britain. Ph. D. thesis, De Montfort University, U. K., 302 pp.

Wardle, R. A. and McLeod, J. A. 1952 The Zoology of Tapeworms. Hafner Pub. Co., London. 780 pp.

Yamaguti, S. 1959 Systema Helminthum.. Vol. II. The cestodes of vertebrates. Intersci. Publ. Inc., New York. 878 pp.

Fig. 1: *Raillietina echinobothrida*, scolex.

Fig. 2: *Raillietina echinobothrida*, mature segments.

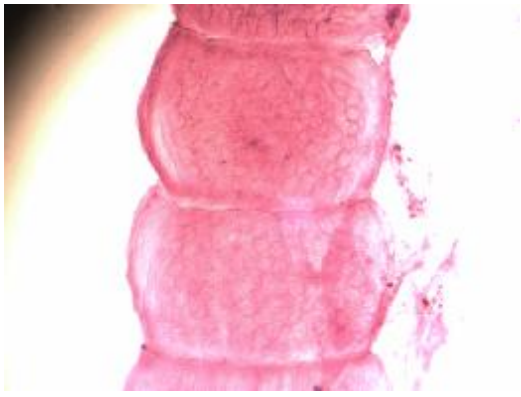

Fig. 3: *Raillietina echinobothrida*, gravid segments with egg capsules.

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الدودة الشريطية *Raillietina echinobothrida* المتطفلة في العصفور الدوري في مدينة بغداد وسط العراق

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الخلاصة

للعصفور المنزلي *Passer domesticus biblicus* صلة وثيقة بالإنسان، و يتواجد في اغلب النظم البيئية قرب التجمعات البشرية في العراق ويتعرض هذا الطائر إلى الإصابة بالطفيليات في بيئته.

أثناء البحث عن الديدان الشريطية في هذا الطائر، تبين إصابة ٢٥ من مجموع ٥٦ فردا منه وبنسبة إصابة (٤٤,٦%) بالشريطية *Raillietina echinobothrida*. تمت مناقشة شدة الإصابة في كلا جنسي الطائر ووصف للدودة الشريطية. يعتبر تسجيل هذه الدودة في العصفور المنزلي هو الأول في العراق.