

# The Ixodid Ticks of the Long-Eared Hedgehog *Hemiechinus Auritus* (Gmelin, 1770) in Baghdad Area

Suhad Y. Jassim

Iraq Natural History Research Centre and Museum, University of Baghdad Bab Al-Muadham, Baghdad, Iraq

**Abstract:** 20 long-eared hedgehogs (*Hemiechinus auritus*) were collected from Baghdad area, In June 2015 to June 2016, was infected by 45 ticks. The samples were obtained from 15 infected animals 20 male and 25 female. The study show that a long-eared hedgehog was infected by one genera of *Rhipicephalus* and single species (*R.turanicus*).

**Keywords:** Ecto-parasites, Ixodid ticks, Long-eared hedgehog, *Rhipicephalus turanicus*

## 1. Introduction

In general Hedgehogs are small mammals in winter hibernate for few days and are active in summer feed on insects, reptiles, small mice and bird eggs as they feed on plants [3]; [10], There are three genera and species of Hedgehog *Hemiechinus auritus* has long ears, European Hedgehog has shorter ears and longer nose *Erinaceus europaeos* and African hedgehog Its color tends to brown and is called *Paraechinus aethopicus* [13], it belong to order Insectivora Family *Erinaceidae* [11]. Our study on Ectoparasites of *Hemiechinus auritus* are living organisms that live on the host's body as ticks [7]. Hard ticks (Ixodid) are considered to be the main vectors of diseases that infect mammals [5], [14];[15];[16] covered the Ixodoidea on domestic animals in Iraq, seasonal and geographic studies, and studied host distribution in Iraq .[2] recorded the occurrence of lice, mice and ticks on domestic mammals. ecto- parasites studies of wild animals in Iraq are still few [9] Collect ticks on these animals[1] recorded four species of ticks on Long eared hedgehog in Nineveh province [6] stated that the Long eared hedgehog infected with two species of ticks [18] recorded a more infection ratios of Ixodid ticks on Long eared hedgehog in the middle and south of Iraq,[ 20] confirmed that *R.turanicus* is considered a new record in Iran, [17] also proved that hedgehog infected with *R.spp.* in Saudi Arabia[5] found that *R.turanicus* also collected from hedgehog in Turkey . The aim of this study is to investigate and record Ixodid ticks infected Long-eared hedgehog in Baghdad area.

## 2. Materials and Methods

A total of 20 specimens of the long-eared hedgehog *Hemiechinus auritus* collected from different areas of Baghdad province during June 2015 to June 2016 .The animals were carefully examined for tick parasites, of them 15 (75%) were found infected with only one species of ixodid tick *Rhipicephalus turanicus*. the recovered ticks were 45 (20 males and 25 females) with an intensity of 3, Ticks were kept in vials with 70% alcohol, cleaned from debris, labelled and stored until the laboratory examination. Identification was done according to keys provided by [12]

## 3. Results and Discussion

From this study results shown a total of 20 long-eared hedgehogs, 15 were infected (75%) with one genera of Ixodid ticks *Rhipicephalus* is *R.turanicus*. the number of ticks samples that were released from the animals (45) 20 male and 25 female (table 1), Intensity of ticks (3) from the total number of ticks (45).In general *Rhipicephalus* is considered a three-host tick species and its mid brown color. Eyes and pistons are present females of *R. turanicus* have the genital aperture with posterior lips , males have small shallow cervical fields, male and female of *R.turanicus* have spiracle plates with tails [19] fig (1).

Table (1)

Host	No.	No. Infected	%	Ticks species	Male	Female	Total no. of ticks
<i>Hemiechinus auritus</i>	20	15	75	<i>Rhipicephalus turanicus</i>	20	25	45

In this work results shewed that the Long-eared hedgehog infected with one species of *Rhipicephalus turanicus* This corresponds to the findings of [1]; [2]; [4]; [19]; [5], while [6] Prove a presence of *Haemaphysalis sp.* and *Argus persicus*, [13] recorded in addition to the genus *Rhipicephalus* the genus *Hyalomma* [4] found another species of *Rhipicephalus* with *R. turanicus*. Also [8] recorded a presence of *Rhipicephalus appendiculatus* on hedgehog. As for the infection rate in this study was recorded a rate of 75% and can be considered a large proportion compared to other studies [8] recorded 20.5%, While the percentages were close to or equal to what reached [5] as it was 66.66 % and [18] where was 76.19% .This shows that *Rhipicephalus* especially *R.turanicus* It is widely found in wild animals, especially on hedgehogs with high rate.

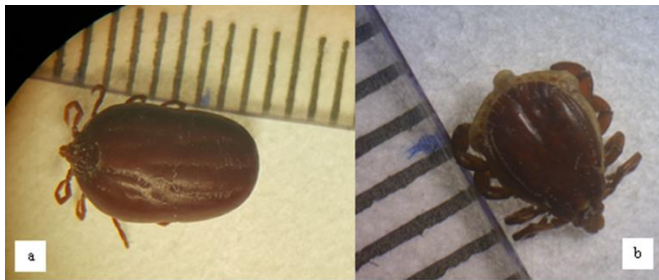


Figure 1: Rhipicephalus turanicus "(a)" female "(b)" male

#### 4. Conclusions

Through this work It can be inferred generally hedgehogs and especially long - eared hedgehogs are infected with the most common genus of ixodid ticks that is Rhipicephalus and the species R.turanicus in Baghdad area with infested rate of 75% These results are of great benefit in several fields like human and animal health as well as scientific fields and so on.

#### 5. Acknowledgements

I extend my thanks and appreciation to the Iraq Natural History Museum, University of Baghdad, , especially to Professor Dr. Mohammad K. Mohammad and Lecturer Saman R. Lahony for all their assistance in accomplishing this work. I also express my great respect to my husband Dr. Hussein Abbas Jabur for his continuous support in completing my scientific career.

#### References

- [1] Abdulla.A.and Hassan L S, "Ectoparasites of the long-eared hedgehog Hemiechinus auritus (Gmelin, 1770) in Ninawa dist," Journal of International Business Studies, . J. Biol.Sci. Res .18(2)43-52, 1987. (journal style)
- [2] Abul-Hab, J. and Shihab, B. A, "some ectoparasites of the hedgehog Hemiechissnus auritus (Insectivora, Erinaceidae)in central Iraq Bull," Iraq nat, Hist. Mus., 8(4): 17-29, 1996. (journal style)
- [3] Çolak E., YIGIT N., SÖZEN M., "A Study on the Long-eared hedgehog, Hemiechinus auritus (Gmelin, 1770) (Mammalia: Insectivora) in Turkey," Tr. J. of Zoology. 22 131-136, 1998. (journal style)
- [4] Cunningham P.L. and Thompson K, "Tick-host relationships as determined from wildlife in the United Arab Emirates," (Acarina, Fam. Ixodidae) - a preliminary study , Tribulus magazine, 2011. (journal style)
- [5] Goz Y; Yilmaz A B; Aydin A, and Dicle Y, "Ticks and Fleas Infestation on East Hedgehogs (Erinaceus concolor) in Van Province, Eastern Region of Turkey," Journal of International Business Studies, . J. Biol.Sci. J Arthropod Borne Dis. 2016 Mar; 10(1): 50–54. (journal style)
- [6] Hamza H.H.; Muter K.M. and Hasan H.E, "Study of the parasitic invertebrates group on long ear hedgehogs Hemiechinus auritus in Al-Diwaniya city," Journal of ALqadisyah 16(4);1-8, 2011. (journal style)
- [7] HOPLA C.E. ; DURDEN L.A. and KEIRANS J.E, "Ectoparasites and classification," Rev. sci. tech. Off. int. Epiz.,13 (4), 985-1017,1994. (journal style)
- [8] Hosni MM1, Maghrbi AA2, "Ectoparasites infestation of free-ranging hedgehog (Etelerix algirus) in north western Libya," Open Vet J. 4(1):12-5, 2014. (journal style)
- [9] Hubbard C.A, "Some ticks from Iraq," Entomological news LXVI: 189-191. 1955. (technical report style)
- [10] Hutterer, R Wilson, D.E.; Reeder, D.M., eds. Mammal Species of the World, A Taxonomic and Geographic Reference (3rd ed.). Johns Hopkins University Press. p. 215, 2005. (book style)
- [11] Mahdi N and Georg P.V, A systematic list of the vertebrates of Iraq,Iraq natural history museum ,publication no. 26, April 1969. (journal style)
- [12] Mohammad. M.K.; ). A bio-taxonomic study on the hard ticks (Acari: Ixodidae) of some domestic and wild animal from Iraq. Ph. D. thesis, College of Science, University of Baghdad. 1996. (book style)
- [13] Nematollahi A; Helan J A; Golezardy H; Zaboli N; Nouruzi M and Azari M, "Parasitic Fauna of East European Hedgehog (Erinaceus Concolor) and Their Pathological Aspects in Iran," Advances in Zoology and Botany 2(1): 1-5, 2014. (journal style)
- [14] Robson, J. and Robb, J. M, "Ticks (Ixodoidea) of domestic animals in Iraq spring and early summer infestation in the Liwas of Baghdad, kut, Amara and Basra," J. Med. Ent.,4(3): 289-293, 1967. (journal style)
- [15] Robson, J. and Robb, J. M. and Hawa, N. J, "Ticks (Ixodoidea) of domestic animals in Iraq. Part 4: A comparison of infestation in winter and early summer in Liwa of Mosul," J. Med. Ent., 5 (2):261-264, 1968. (journal style)
- [16] Robson, J. and Robb, J. M. and Hawa, N. J, "Ticks (Ixodoidea) of domestic animals in Iraq. Part 5 Infestations in the Liwas of Diwaniya and Nasiriya(spring), Karbala (winter), and Hilla (autumn and winter)," J. Med. Ent., 6 (2): 120-124, 1969. (journal style)
- [17] ShiferawDesta F.and Soares J.F, "TICK SURVEY IN ETHIOPIAN HEDGEHOGS (PARAECHINUS AETHIOPICUS , AT THUMAMAH, SAUDI ARABIA," Wildlife middle east news, Volume 7 ,no. 1 April, 2014. (journal style)
- [18] Shubber, H.W.K.; Al-Hassani, N.A.W. and Mohammad, M.K, "Ixodid ticks diversity in the middle and south of Iraq," Journal of International Business Studies, IJRSR, 5 (9): 1518-1523, 2014. (journal style)
- [19] Walker AR, Bouattour A, Camicas JL, "Ticks of domestic animals in Africa: A guide to identification of species," Scotland, UK: Bioscience Reports ; 2007. pp. 202–205, 2007. (technical report style)
- [20] Youssefi M.R., Rahimi M.T., Hosseini S.M.and Darvishi M.M, "First Report of Rhipicephalus turanicus from Hedgehog (Erinaceus concolor) in North of Iran," World Journal of Zoology 6 (4): 401-403, 2011. (journal style)

#### Author Profile

**Suhad Y. Jassim** received the B.S.in Biology and M.S. degrees from Al-Anbar University in animal physiology 1998 and 2000, respectively. Since 2003 she works in Iraq Natural History Museum, University of Baghdad, Ministry of Higher education and scientific research of Iraq.