

## Research Note

# First record of chewing louse *Heterodoxus spiniger* (Insecta, Phthiraptera, Boopidae) on stray dogs from northern region of Egypt

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**Abstract.** *Heterodoxus spiniger* is a rare chewing louse; infest dogs and occasionally cats with expanding geographical distribution. This preliminary report is aimed to record infestation of stray dogs in Kafr El-Sheikh city, Egypt by *H. spiniger*. Two dogs out of 10 were naturally infected with *H. spiniger*. This report is the first to demonstrate *H. spiniger* infestation on dogs in northern regions of Nile-delta of Egypt.

Lice (Insecta: Phthiraptra) are obligatory ectoparasite infesting wide range of birds and mammals. Dogs can be infested by lice which can be categorized into sucking lice (Anoplura) and chewing lice (Mallophaga), the most common canine chewing louse all over the world is *Trichodectes canis* (Johnson & Calyton, 2003).

*Heterodoxus spiniger* is another less common species of chewing louse that can infest dogs and occasionally cats (Colless, 1959; Torres & Figueredo, 2007; Jittapalapong *et al.*, 2008; Norhidayu *et al.*, 2012). The geographical distribution of *H. spiniger* is documented in South-East Asia (Jittapalapong *et al.*, 2008) and American continent (Gonzalez *et al.*, 2004; Torres & Figueredo, 2007; Bermúdez & Miranda, 2011; Venzal *et al.*, 2012).

Delta of Egypt is characterized by a moderate “Mediterranean” climate and is over populated (El-Ramady *et al.*, 2013). Primitive and limited strategies are employed to control stray dogs (Aidaros, 2005). All the previous mentioned factors

favour the existence of ectoparasite and maintenance of arthropod-borne helminthes infection particularly those that are zoonotic in nature. Amin & Madbouly (1973) recorded *H. spiniger* on Egyptian stray dogs captured from desert areas outside the delta region, and since then, no report on *H. spiniger* in Egypt was documented.

Moreover, little data are available about chewing lice infesting dogs in Egypt which might transmit diseases from animals to humans. So, the aim of the present preliminary study is to report the finding of *H. spiniger* on dogs for the first time in northern Nile-Delta, Egypt.

From July 2012 to April 2013, 10 stray dogs (of various ages, breeds and both sexes) were captured alive in Kafr El-Sheikh city (31°06'42”N 30°56'45”E), located in northern Egypt.

Dogs were transferred alive to the laboratory, screened for presence of ectoparasites by the aid of hand lenses and a fine tooth-comb. Samples were collected, counted, fixed in 70% ethanol. For

identification, some specimens were cleared in polyvenyl lactophenol and mounted as described by Price & Graham (1997). Available literatures (Johnson & Calyton, 2003; Torres & Figueredo, 2007; Norhidayu *et al.*, 2012) were used to identify the louse species. Representative specimens of the current study were deposited in the collection of Department of Parasitology, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt.

In spite of limited number of animals examined in the current study, *H. spiniger* was recorded in 2 out of 10 stray dogs. Dogs with louse infestation were two male puppies captured together from the same location. One hundred and ten lice (65 males, 43 females and 2 nymphs) were counted from both dogs (intensity 55 lice/dog). No other louse species were found on all examined dogs. Other ectoparasite species detected in this study were fleas *Ctenocephalides canis*, *Ctenocephalides felis* and one hard tick species *Rhipicephalus sanguineus*. Collected louse specimens showed the characteristic morphological criteria consistent with previous studies on *H. spiniger*.

It is a fact that the geographical origin of *H. spiniger* is Australian and due to extensive movement of humans and animals it was introduced to many parts of the world with new geographical records in different continents; countries and localities (Thompson, 1940; Amin & Madbouly, 1973; Torres & Figueredo, 2007).

In Egypt, *H. spiniger* have been recorded before (Amin & Madbouly, 1973), about 4 decades later Ramadan & Abd-El- Mageid (2010) recorded another species namely *Trichodectus canis* on dogs. But interestingly, the figure represented in the article of Ramadan & Abd-El- Mageid (2010) agreed with the general morphological criteria of *H. spiniger* that gives serious doubts about the species they found.

The represented data on finding of *H. spiniger* on Egyptian dogs in the current preliminary study are new as Amin & Madbouly (1973) recorded it outside Delta of Egypt and with very low prevalence. But, the results of the current study disagree on lice

species taxonomy with that of Ramadan & Abd-El- Mageid (2010), but may be explained by a lack of recent studies on dog ectoparasites in Egypt; and the fact that *T. canis* is more common in both prevalence and geographical distribution than *H. spiniger*.

It is well-known that *H. spiniger* can be intermediate host for the filarial nematode *Dipetalonema reconditum* which can infect human (Venzal *et al.*, 2012). Generally speaking, *H. spiniger* is considered as rare dog lice, its prevalence seems very low (1.96%) (Norhidayu *et al.*, 2012) to low (3.5-10%) (Torres & Figueredo, 2007; Troyo *et al.*, 2012). In Egypt, Amin & Madbouly (1973) recorded its prevalence rate as 5%. Results of lice intensity (louse/dog) in the current study are slightly higher than that reported by Ramadan & Abd-El- Mageid 2010 (39.7) and much higher than those of Amin & Madbouly 1973 (0.29); this indicates the adaptation of *H. spiniger* infestation to the local dogs.

In conclusion, our introductory survey indicates the first report on infestation of stray dogs in northern regions of Egyptian Delta with *H. spiniger*; this can be explained by the suitability of the climate and availability of hosts. Further studies are encouraged to clarify its distribution and prevalence in Egypt.

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