Heterodoxus spiniger (Enderlein, 1909) on domestic dogs (Canis familiaris, L. 1758) from the city of Recife, Pernambuco State, Brazil

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Abstract

In the city of Recife, Pernambuco state, northeastern Brazil, domestic dogs are usually infected by ectoparasites of both veterinary and public health importance. Heterodoxus spiniger is a common dog chewing louse, which is known as an intermediate host of Dipetalonema reconditum. Despite of its wide geographical diffusion in Brazil, Heterodoxus spiniger was only recently recorded in Pernambuco. The aim of this paper was to verify the infestations by Heterodoxus spiniger on dogs from Recife. Three hundred and ten dogs were examined and 11 of these were parasitized by Heterodoxus spiniger, corresponding to a prevalence rate of 3.5%. This indicates that Heterodoxus spiniger can be found on dogs from Recife, but in low prevalence.

Key-words:
Heterodoxus spiniger.
Louse.
Dogs.
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Introduction

Lice (Phthiraptera: Insecta) are wingless insects and are usually highly host-specific1,2. It means that a give species of louse is generally associated with only one kind of animal host. They develop through paurometabolic development (i.e. gradual metamorphosis)1. Moreover, as obligatory parasites, they are not able to live out of their host's body for a long period of time1,2. The order Phthiraptera is represented by four suborders: Anoplura, Rhyncophthirina, Ischnocera, and Amblycera. These suborders have been traditionally grouped into two groups according to their different feeding habits. The sucking lice (Anoplura) have mouthparts designed for sucking and feed solely on blood, while the chewing lice (Rhyncophthirina, Ischnocera, and Amblycera) have their mouthparts designed for chewing, and feed on feathers, hair and skin scales. Chewing lice may be found on a diverse range of mammals and birds, while sucking lice are restricted of mammalian hosts1.

The domestic dogs may be infested by two species of chewing lice: Trichodectes canis and Heterodoxus spiniger1,3. Trichodectes canis is a really common dog chewing louse, whose parasitism may cause pruritus, but also transmission of certain pathogens, such as the dog tapeworm Dipylidium caninum. Heterodoxus spiniger, which is commonly found in both tropical and subtropical regions, is a known intermediate host of Dipetalonema reconditum, a filarial parasite that is usually regarded as a non-pathogenic nematode found in either subcutaneous tissues or peripheral blood of dogs. However, a recent paper described the first report of human subconjunctival infestation with an adult unfertilized Dipetalonema reconditum4.

Heterodoxus spinigeris widely distributed in Brazil1,3,3, thought it was only recently recorded in Pernambuco state. In 2003, two single cases of Heterodoxus spiniger infestation on dogs were reported from the cities of Olinda and Recife, respectively. In this way, the aim of this paper was to further identify the infestations by Heterodoxus spiniger on dogs from Recife, Pernambuco, Brazil.
Materials and Methods

From May 2003 to April 2004, 310 domestic dogs (of various ages, breeds and both sexes) naturally infested by ectoparasites were examined for the presence of *Heterodoxus spiniger*. Every specimen found was manually collected from its host and stored in 70% alcohol, until need.

Before examination under the optical microscope, a sample of ectoparasites was placed on a drop of lactophenol solution on a clean glass slides. Later, taxonomic keys were used for determination of family, genus and species levels. The specimens examined are deposited in the personal collection of the first author of the present paper.

Results and Discussion

A total of 11 domestic dogs were found naturally parasitized by *Heterodoxus spiniger*, which corresponds to a prevalence rate of 3.5%.

Under optical microscope, the specimens present a subtriangular head, with rounded anterior margin and slightly concave posterior margin. Two post-palpal processes growing immediately behind the maxillary palps may be seen in the ventral side of head (Figure 1). These processes are characteristics of the family Boopiidae and therefore are invariably present in *Heterodoxus spiniger*. Maxillary palps are long and slender, while antennae are relatively short. The thorax is longer than wide, while the head is wider than long. The abdomen is long and oval. Adjacent surface between neighboring pleurites are provided with dense triangular spines going over laterally and gradually into tile-like plates. This is an important morphological feature that is expressed in all developmental stages of *Heterodoxus spiniger*.

*Heterodoxus spiniger* is part of the louse
fauna of Australia, though it can be found on dogs from several countries2,3,4,5,6,7,8,9. In Brazil, Werneck3 examined specimens of this chewing louse found on dogs from several Brazilian states, but also from Argentina and United States of America. In fact, both *Heterodoxus spiniger* and *Trichodectes canis* are widely distributed in many Brazilian states, such as Goiânia and Minas Gerais3,4,5. In Pernambuco, however, the record of *Heterodoxus spiniger* on dogs is recent6,7. In 2002, a study was carried out in both urban and rural areas of Pernambuco and *Trichodectes canis* was the only louse species encountered on dogs8,9. There are many hypotheses to explain this event. The most probable is that *Heterodoxus spiniger* had already been introduced years before, but had not been previously found in Pernambuco due to its low prevalence on the canine population, lack of further studies, or both. Another hypothesis, less probable in our opinion, is that domestic dogs imported from areas where the parasitism by *Heterodoxus spiniger* is endemic (e.g. Minas Gerais or even Argentina) had recently introduced this dog chewing louse in Pernambuco. Indeed, the question on both chronological and geographical origin of *Heterodoxus spiniger* strains of Pernambuco is a topic to be approached in future studies.

**Conclusion**

In conclusion, the present study confirms that *Heterodoxus spiniger* can be found on domestic dogs from Recife, though in low prevalence.

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**References**


