



Morphological features of *Brueelia amandavae* (Ischnocera: Phthiraptera) Infesting the Red Avadavat (*Amandava amandava*)

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ABSTRACT

The Red Avadavat (*Amandava amandava*), a small estrildid finch, serves as a host to several ectoparasites, most notably the ischnoceran louse *Brueelia amandavae* (Rekasi & Saxena, 2005). This study outlines the morphological characteristics and population dynamics of *B. amandavae*. Morphological analysis reveals a highly adapted, dorso-ventrally flattened body specialized for inhabiting the host's feathers, particularly in the breast and back regions. Key diagnostic features include the shape of the marginal carina, abdominal sclerotization, and sexual dimorphism in terminalia.

Introduction

The genus *Brueelia* K  ler, 1936, is one of the most diverse groups within the Phthiraptera, infesting a wide range of passerine birds. *Brueelia amandavae* is a host-specific species found on the Red Avadavat. Understanding its morphology is critical for taxonomic classification and for understanding the ecological relationship between the parasite and its host. These lice are non-blood-sucking "chewing lice" that feed primarily on the keratin of feathers and skin debris.

Materials and Methods

Specimens are typically collected from live or recently deceased Red Avadavats using the "fumigation" or "visual examination" methods. Lice are preserved in 70% ethanol, cleared in 10% KOH, and mounted on slides using Canada balsam for microscopic examination. Measurements are taken of the total body length, head width, and thoracic segments.

OBSERVATION

Members of this genus are widely distributed on th hosts within the avian order Passeriformes and Piciformes. No comprehensive review of this genus is available.

The genus is characterized as follows-

1. Head Morphology The head is circumfasciate, with a rounded anterior margin.

Marginal Carina The marginal carina is well-developed and uninterrupted, a key feature of the *Brueelia* complex.

Antennae: Five-segmented and filiform. In males, the antennae are slightly more robust than in females, though not typically used for grasping as in some other ischnoceran genera.

Mouthparts: Mandibles are highly sclerotized for chewing feather vanes.

2 Thorax and Abdomen

Thorax: The prothorax is smaller than the pterothorax. The legs are adapted for movement within feathers, ending in two small claws.

Abdomen: Elongated and oval. The tergites (dorsal plates) and sternites (ventral plates) are distinct.

In Males: The terminal abdominal segment is rounded and highly setose.

In Females: The abdomen is generally larger than the male's, with a more pointed or specialized genital chamber for egg-laying.

3. Egg Morphology (Nits)

Shape: Ovoid and white/translucent.

Attachment: Glued to the lateral plumulaceous portion of the feather vane, often at an angle of 20°–30°.

Chorion: The egg shell (chorion) is relatively smooth, lacking the complex sculpturing seen in some amblyceran species.

4. Sexual Dimorphism and Life Cycle

Adults exhibit clear dimorphism, where females are significantly larger than males.

Average Male Length: ~1.3 mm to 1.5 mm

Average Female Length: ~1.6 mm to 1.9 mm

The life cycle consists of the egg, three nymphal instars, and the adult stage. Research indicates an intrinsic rate of natural increase of approximately 0.031 per day, with a population doubling time of roughly 23 days under optimal conditions.

CONCLUSION

Brueelia amandavae (Fig.1 & 2) is morphologically specialized to minimize detection by the host during preening while maximizing its ability to consume feather keratin. Its presence on *Amandava*

amandava highlights a stable host-parasite relationship characterized by high host specificity. Further molecular studies are recommended to understand the phylogenetic placement of *B. amandavae* within the hyper-diverse *Brueelia* complex.

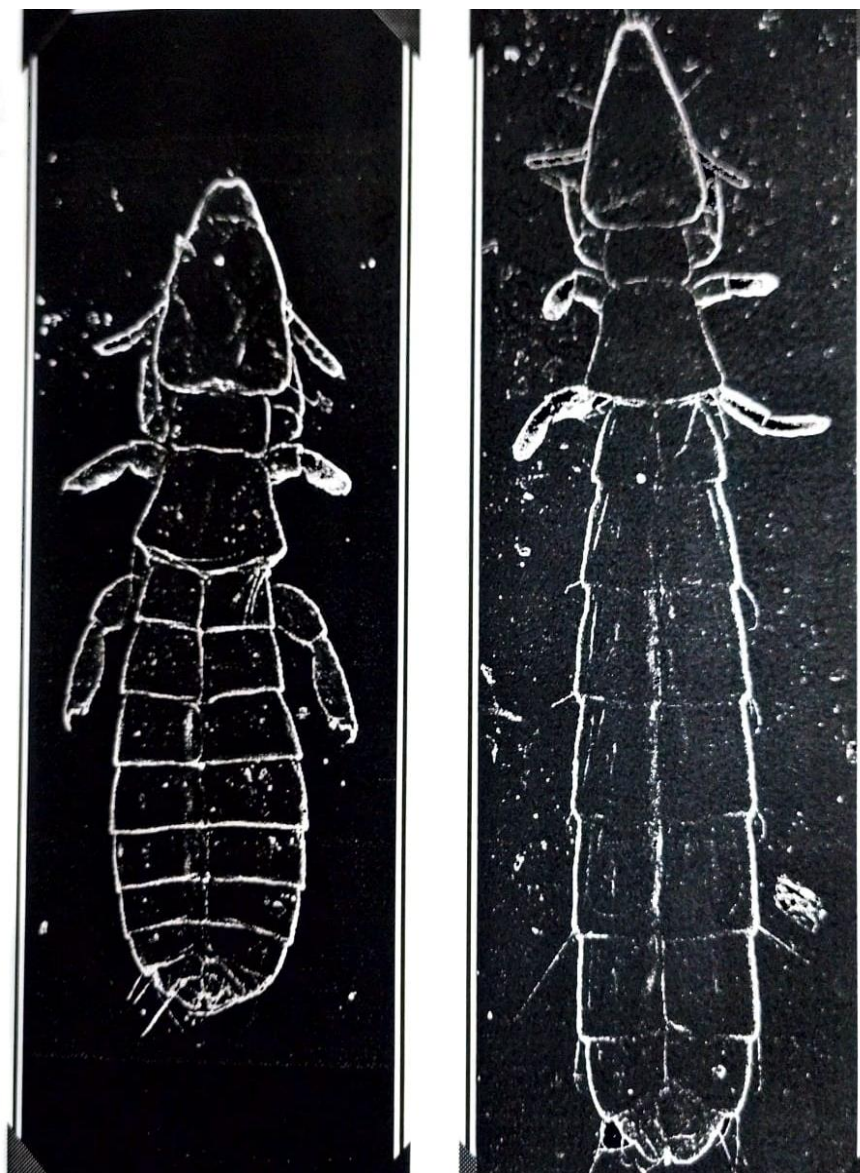


Fig. 1 SEM Photograph of *Brueelia* sp., Male

Fig. SEM Photograph of *Brueelia* sp., Female