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Morphological and Biological Characterization of Ectoparasitic Arthropods Identified in Domestic Animals from Northeastern Romania

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INTRODUCTION & AIM

Ectoparasitic arthropods represent a significant component of faunal biodiversity, characterized by high zoological and veterinary relevance due to their specialized parasitic adaptations and roles as biological vectors. This study provides a detailed morphological and biological characterization of four distinct ectoparasitic taxa identified in domestic mammals from northeastern Romania. The research aimed to document diagnostic morphological traits, developmental stages, and host specificity, with a focus on subtle variations in body structure, appendages, and cuticular patterns.

METHOD

The research was conducted at the Medicrisvet Veterinary Clinic in Fălticeni, Suceava County, over the course of 2024. Specimens were collected from dogs, cats, and hamsters using skin scrapings, scales, crusts, and ear swabs, which were preserved in 70% ethanol. For the identification of mites such as *Demodex* spp. and *Otodectes cynotis*, biological material was prepared and examined under light microscopy to document diagnostic morphological traits. *Rhipicephalus sanguineus* specimens were analyzed under a stereomicroscope to identify specific morphological features and developmental stages, including larvae, nymphs, and adults. Quantitative data were processed to calculate the prevalence of each species and analyze their seasonal distribution in relation to host preference.

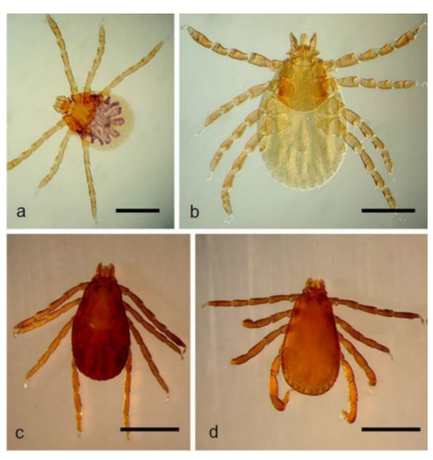

Figure 1. Developmental stages of the tick *Rhipicephalus sanguineus*: larva (a), nymph (b), adult female (c), and adult male (d). Source: Dantas-Torres F., *Parasites & Vectors*, 2013, 6:213. Reproduced under **CC BY 2.0** license.

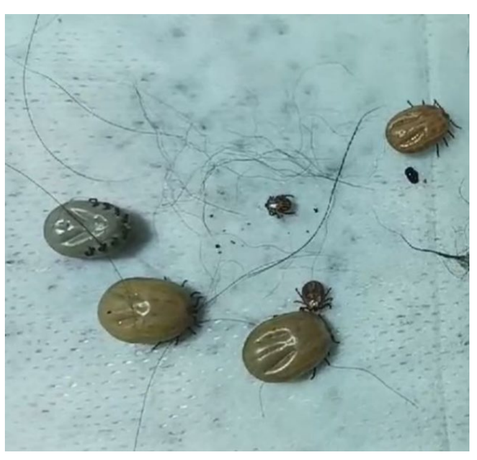

Figure 2. *Rhipicephalus sanguineus* collected from a dog (female, 11 months old, 5 kg).

RESULTS & DISCUSSION

Quantitative analysis revealed *Rhipicephalus sanguineus* as the dominant species with a 43% prevalence, followed by *Otodectes cynotis* (29%), *Demodex cati* (18%), and *Demodex criceti* (10%). These results highlight significant differences in host preference and ecological adaptation to urban and peri-urban environments. Infestations were more frequent during the warm season, from May to September, a period coinciding with increased vector activity and environmental interactions. The observed morphological variability underscores specialized adaptive features related to host microhabitat and feeding behavior. The inclusion of *Demodex criceti* from hamsters emphasizes the importance of monitoring small companion mammals to fully assess the regional biodiversity of parasitic arthropods.

CONCLUSION

This study provides updated faunistic and morphological data on ectoparasitic arthropods in Northeastern Romania. The findings underscore the integrative role of detailed morphological analysis in systematic zoology. Rhipicephalus sanguineus remains the most prevalent species in the region, while the identification of specific mites like *Demodex criceti* expands the local taxonomic documentation. These results emphasize that understanding regional prevalence patterns and morphological adaptations is essential for veterinary medicine and the study of parasitic biodiversity. The research supports the need for continuous monitoring of domestic animal populations to better understand the ecological dynamics of these arthropod taxa.

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