

Flea mite phoresy and high prevalence of *Rickettsia asembonensis* in *Archaeopsylla erinacei* fleas from European hedgehogs

MARCOS ANTONIO BEZERRA-SANTOS¹, JAIRO ALFONSO MENDOZA-ROLDAN¹, GIOVANNI SGROI¹, ANTONIO CAMARDA¹, ROBERTA IATTA¹, DOMENICO OTRANTO¹

¹ Dipartimento di Medicina Veterinaria, Università degli Studi di Bari Aldo Moro, Italia

INTRODUCTION

The European hedgehog (*Erinaceus europaeus*) harbors diverse ectoparasites (e.g., ticks, fleas, mites) and it is suggested to be reservoir of diverse vector-borne pathogens. Phoretic association of *Caparinia tripilis* mites and *Archaeopsylla erinacei* fleas has been herein described on *E. europaeus* hedgehogs. In addition, arthropod-borne pathogens have also been investigated in ticks, fleas and mites collected on this host species.

MATERIALS & METHODS

Animals ($n = 47$) were captured in two regions of South Italy (**Fig. 1**) and individually inspected for the presence of ectoparasites, which were morphologically identified at genus and species levels. Vector-borne pathogens (*Rickettsia* spp., *Borrelia* spp. and Anaplasmataceae) were molecularly screened.

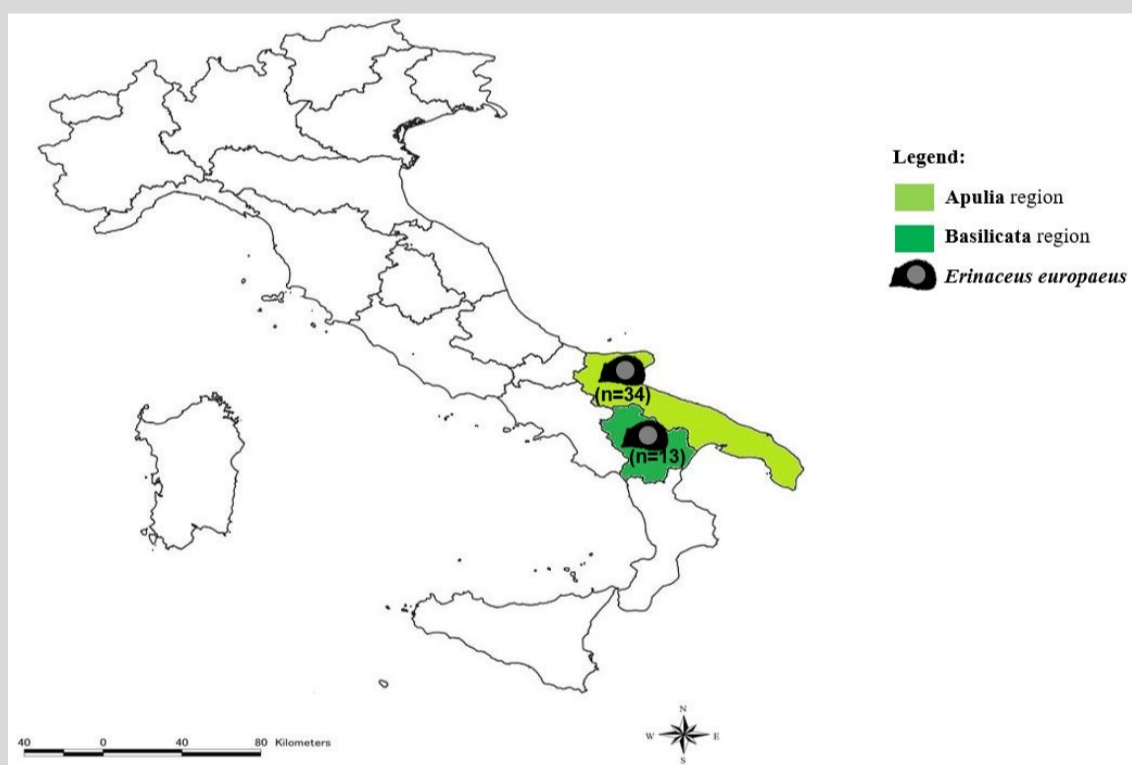


Fig. 1 - Study area, southern Italy.



Fig. 2 - *Caparinia tripilis* mites in phoretic association with *Archaeopsylla erinacei* flea.

RESULTS & CONCLUSIONS

Of 47 hedgehogs examined, 21 (44.68%) were positive for ectoparasite infestation, with 18 (38.30%) presenting infestation by fleas, 7 (14.89%) by ticks and 6 (12.77%) by mites. Phoretic behavior of *C. tripilis* mites on *A. erinacei* was detected in two female flea specimens (**Fig. 2**). *Rickettsia* spp. was detected in 93.33% (42/45) of the fleas evaluated. Ticks and mites scored all negative for the pathogens tested. According to BLAST analysis, all sequences of *Rickettsia* spp. presented 100% nucleotide identity with *Rickettsia asembonensis* sequences available at the GenBank database. Data suggest the occurrence of a new phoretic association between *C. tripilis* mites and *A. erinacei* fleas, which could be an important route for the spreading of this mite species through hedgehog populations. Additionally, the high prevalence of *R. asembonensis* recorded suggests that *E. europaeus* hedgehogs may play a role as a reservoir host for this bacterium.