

CO-PARASITISM OF *PYEMOTES VENTRICOSUS* (ACARI: PYEMOTIDAE) AND *SCLERODERMA DOMESTICA* (HYMENOPTERA: BETHYLIDAE) ON *OLIGOMERUS PTILINOIDES* (COLEOPTERA: ANOBIIDAE): A CASE STUDY RELATED TO A PRIVATE APARTMENT IN SICILY

¹ Sara Zampetti, ¹ Paolo Masini, ² Gloria Miñón Llera, ³ Fabio Biancolini



¹ Veterinary Surgeon, Cani Anti Cimici ® - www.canianticimici.com - Magione (PG), Italy

² Biologist freelancer, Oviedo, Spain

³ Gli Specialisti della Disinfestazione Ecologica – www.glispecialistidelladisinfestazione.com - Roma, Italy



INTRODUCTION

Pyemotes ventricosus (Fig. 1-2) and *Scleroderma domestica* (Fig. 5-6) are two arthropods carrying out parasitic activity on juvenile stages of several species of insects. *Pyemotes ventricosus* (Newport, 1850) (Acari: Pyemotidae) is a Prostigmata mite with small dimensions (0.2 mm) that principally parasitize larvae and nymphs of *Coleoptera*, *Lepidoptera* and *Hymenoptera*. *Scleroderma domestica* (Latreille 1809) (Hymenoptera: Bethylidae) is an aculeate micro Hymenoptera that carries out parasitic activity to the detriment of larvae of xylophagous *Coleoptera* and some *Lepidoptera*. Both arthropods cause dermatitis highly itchy in the human beings.

In this work we will report a case of dermatitis related to the co-parasitism of two arthropods, *Pyemotes ventricosus* and *Scleroderma domestica* to the detriment of an anobiid xylophagous *Coleoptera* belongin to the *Oligomerus ptilinoides* species.



Fig. 1-2: *P. ventricosus* female (Fig. 1) and male (Fig. 2) mounted in a permanent microscope slide.

MATERIAL AND METHODS

Our study regards a case of dermatitis appeared at the end of August 2014 (Fig 3-4). It was affecting a couple of people that during their summer holidays were residing in an apartment located in the city of Agrigento (Sicily). The lesions arose in the summer, each time the couple of people moved in such apartment and disappeared once they went back to their main home in the city of Bergamo. The lesions of eritemato-edematous type were grouped and had a small haemorrhagic point located in the centre. Shoulders, abdomen and gluteus were the parts more affected. At the beginning of August 2015, we collected four samples of wood-sawdust related to the activity of xylophagous insects that were intensely infesting the worm-eaten furniture. Such samples have been labelled as children bed, queen bed, living room and kitchen. Successively they have been analysed using the stereo-microscope searching potential arthropod pathogens.



Fig. 3-4: Cutaneous lesions of eritemato-edematous type

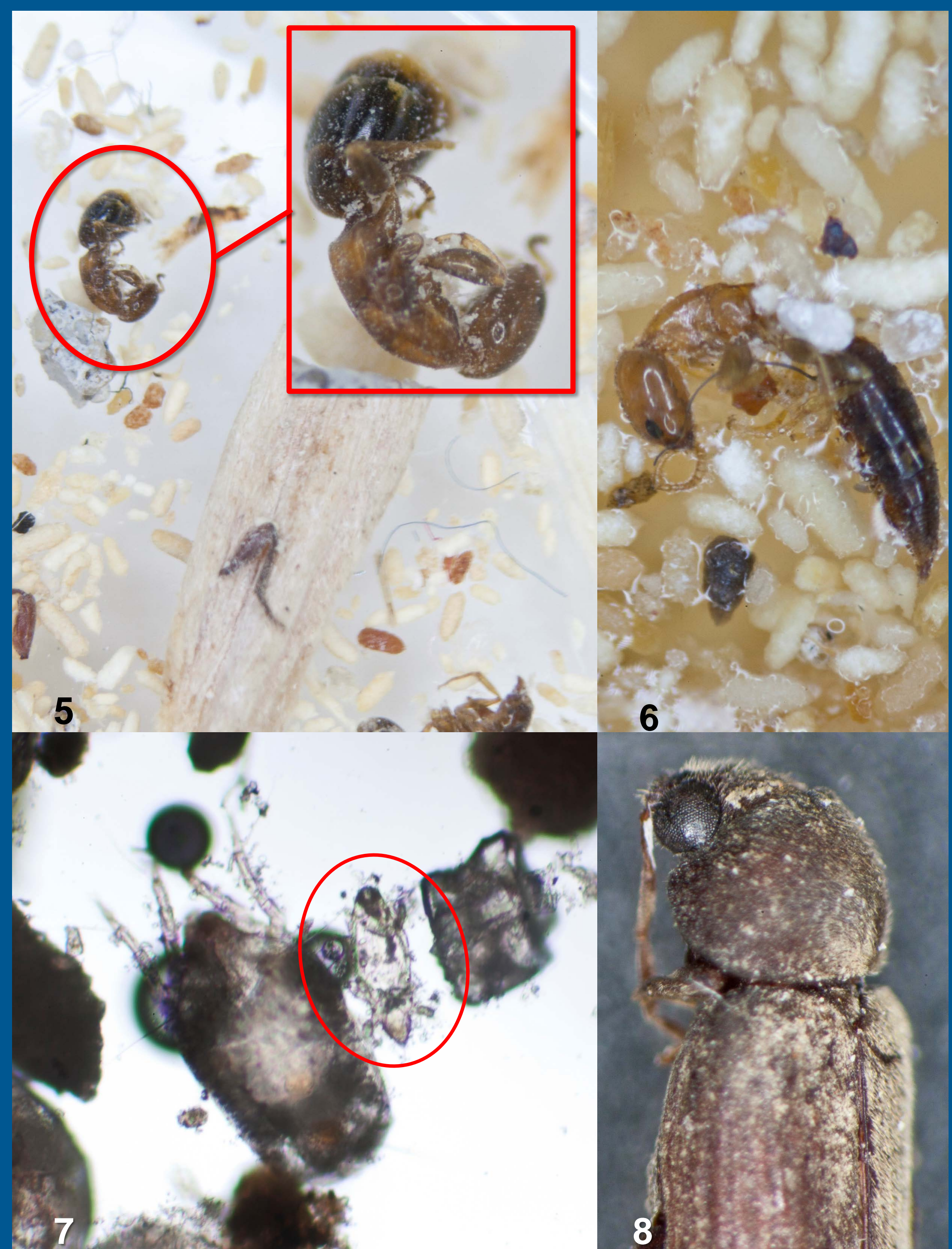


Fig. 5-6: Stereoscope image of *S. domestica* in a sample of wood-sawdust (Fig. 5) and floating in a concentrated salt solution (Fig. 6); Fig 7: Microscope image of *P. ventricosus* (red ring) and *Dermatophagoides* sp. floating in a sample of concentrated salt solution; Fig. 8: Stereoscope image of *O. ptilinoides*, adult.

RESULTS AND DISCUSSION

In all the analysed samples with the stereo-microscope, numerous insects belonging to the *Scleroderma domestica* species have been identified. In two samples (queen bed and living room), some exemplars of *Pyemotes ventricosus* have been isolated and prepared in slides using Berlese solution. After that, they have been examined and identified up to the species using the optical microscope. In all the environmental residues that we examined, together with wooden fragments and excrements, fragments and complete exemplars of *Oligomerus ptilinoides* were present (Fig. 8). Such insect is a xylophagous coleopteran that was infesting the apartment. On the abdominal region of one *O. ptilinoides* we recognized an adult male of *P. ventricosus*.

S. domestica and *P. ventricosus* are two well-known ectoparasites that frequently affect xylophagous insects. Their contemporaneous presence in two of the four collected samples represents a clear indication of their co-parasitism to the detriment of one single species: the *O. ptilinoides*. The dermatitis that affected the people occupying the apartment disappeared after the treatment for worm eaten wood furniture, proving in this way the direct relation between these two arthropods and the skin lesions. Unfortunately it was not possible to verify if both arthropods or only one, caused the lesions.