

Outbreak of occupational dermatitis in a cereal and legume trading company caused by the mite *Pyemotes ventricosus*



P MASINI¹, S ZAMPETTI², F BIANCOLINI², G MIÑÓN LLERA³



¹Cani Anti Cimici ©, Perugia, Italy, www.canianticimici.com; ²Ecotrade Solution Srl, Roma, Italy, www.glispecialistidelladisinfestazione.com; ³Biologist freelancer, Oviedo, Spain.

INTRODUCTION

Pyemotes ventricosus (Newport, 1850) (Acarina: Pyemotidae) is an ectoparasitoid mite that attacks and kills immature stages of a number of insect species infesting wood, cereals and other vegetable materials.^{1,3} This mite can be responsible for temporary ectoparasitosis in humans when an individual comes in contact with infested material.^{1,3} In this work we reported the outbreak of occupational dermatitis in a cereal and legume trading company associated with *P. ventricosus*.

MATERIALS AND METHODS

In a cereal and legume trading company placed in the Umbria province (Italy), some of the employees involved in the direct handling of cereals grain manifested itching and erythematous, edematous and papular skin lesions (figs. 1A-B). The presence of an ectoparasitosis has been suspected, thus, 9 indoor dust and grain samples were collected from various areas of the company where the cereal grains were processed. A microscopic examination of samples was performed,² in order to detect the arthropod responsible for clinical symptoms.

The samples were sieved (5 mm and 1 mm aperture meshes) (fig. 2-A). The sieved material was at first observed under stereomicroscope (0,75X - 5X) (Motic SMZ 168, Milan, Italy) (fig. 2-B) and then flotated utilizing saturated solution of NaCl (20 min). Arthropods fragments were extracted under stereomicroscope using the tip of a pin and then placed in a drop of Berlese solution on a microscope slide with cover slip (figs. 2-D, 3A-B) and observed by optical microscope (4X - 100X) (Motic BA310, Milan, Italy).² Arthropods were identified taxonomically observing them by stereomicroscope or on microscope slides by optical microscope.^{3,4}

RESULTS AND DISCUSSION

In 1 sample (collected by a specific chickpea batch) of the 9 chickpea samples, the mites *P. ventricosus* were found. The mites were alive and with high densities. The removal of the infested chickpea batch determined the resolution of the dermatitis. One-year follow-up was negative.

Therefore, *ventricosus* was the causative agent of the outbreak of the occupational dermatitis in the company's employees. Since all the samples were not infested with insect pests, our hypothesis is that there was a contamination by *P. ventricosus* of chickpea batch. This contamination occurred in the farm where the chickpeas were originally cultivated and then supplied the trading company. Probably, the chickpeas were been stored or processed in an environment of the farm heavily infested with *P. ventricosus*.

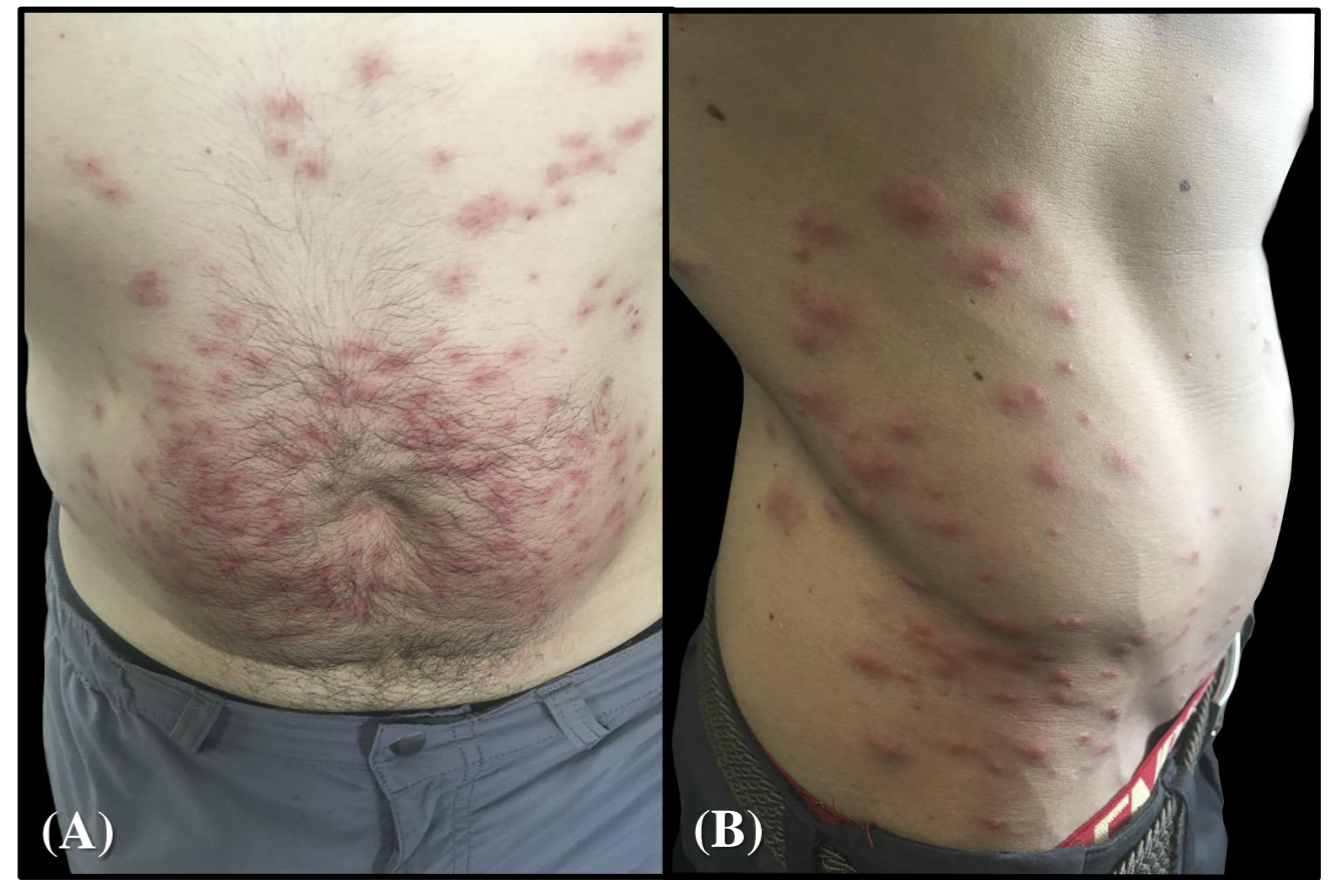


Fig. 1 A,B: Strophulus by *Pyemotes ventricosus* (Acarina: Pyemotidae) in two employees.

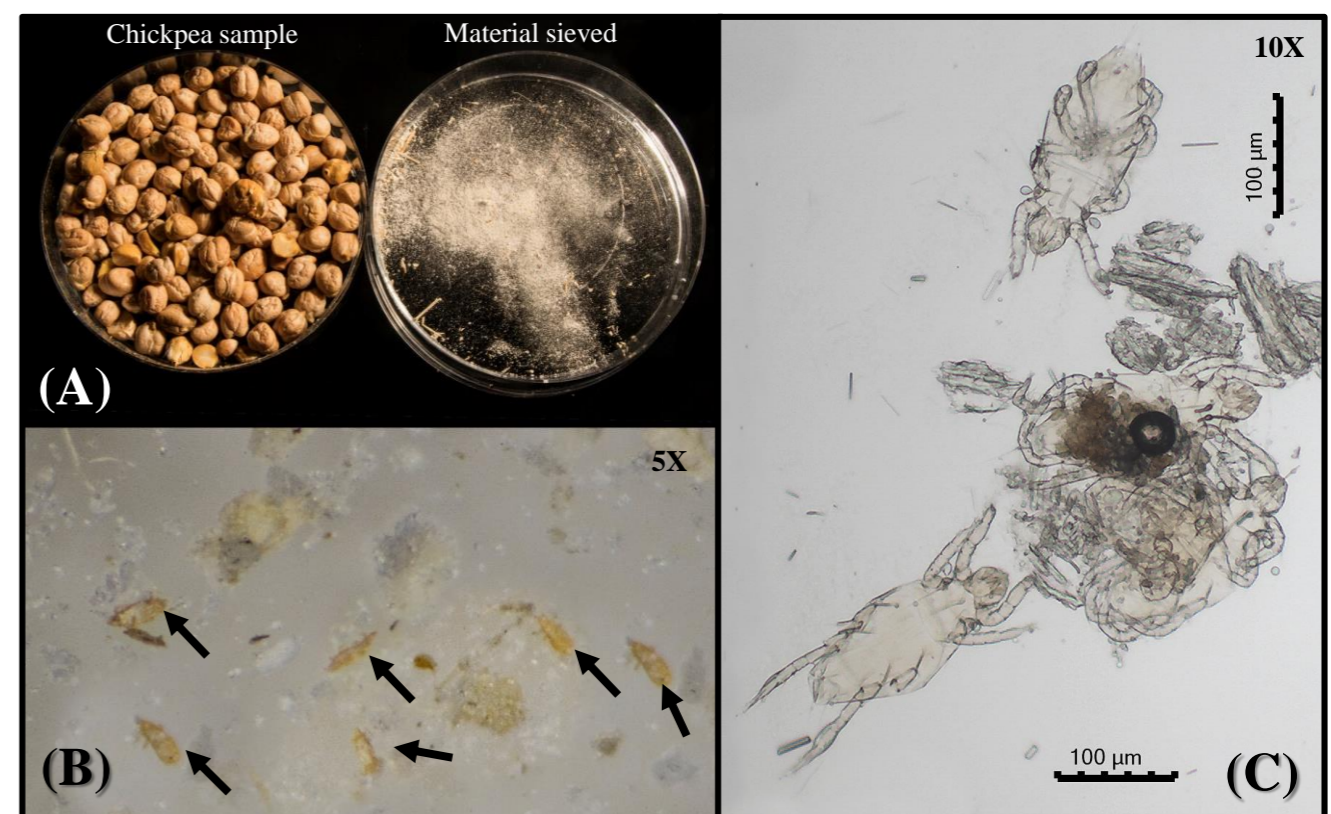


Fig. 2: Samples processing: (A) Chickpea sample before sieving (left) and sieved material (right) (1-5 mm aperture mesh); (B) Light micrographs of sieved material with *P. ventricosus* females (arrows) (5X) [(stereomicroscope - Motic SMZ-168, Milan, Italy) (Motic Image Plus 3.0, Milan, Italy)]; (C) Group of *P. ventricosus* females on microscope slide in Berlese solution (10X) [(Optical microscope - Motic BA310, Milan, Italy) (Motic Image Plus 3.0, Milan, Italy)].



Fig. 3: *P. ventricosus* mounted on microscope slides in Berlese solution: (A) Male in ventral view (40X); (B) female in dorsal view (40X); sensilla (arrows) [(Optical microscope - Motic BA310, Milan, Italy) (Motic Image Plus 3.0, Milan, Italy)].

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