

THE CLOVER MITE, *BRYOBIA PRAETIOSA* KOCH (ACARI: TETRANYCHIDAE) AS A NUISANCE INSIDE A HUMAN HABITATION IN ISRAEL

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ABSTRACT: The clover mite, *Bryobia praetiosa* Koch is a member of the family Tetranychidae and is a cosmopolitan pest of plants. When their number increases around human habitations, they have the tendency to enter homes and buildings and once inside quickly move around, becoming a nuisance. We report the case of seven family members living in Maale Michmash, a rural settlement in the Benjamin Mountain region, north of Jerusalem. Since March 2012, the inhabitants saw numerous small arthropods walking quickly on the walls, cupboards and beds and they were annoyed visually by the presence of these creatures. Outside the house, large numbers of mites were seen on the walls and windows of the house as well as on plants adjacent to the house. Several specimens were collected inside and outside the house and were identified as belonging to the species *B. praetiosa*. The infestation lasted for ca. 3 months, and disappeared spontaneously, when the grass and the plants around the house wilted.

KEY WORDS: Clover mite, *Bryobia praetiosa*, nuisance, human, Israel

INTRODUCTION

The clover mite, *Bryobia praetiosa* Koch is a member of the family Tetranychidae and is a cosmopolitan pest of plants. It is an oval shaped mite, 0.75–0.85 mm long, with long front legs that are longer than the body (about twice the length of the other legs). Depending on the plant on which they are feeding, their color can change from olive green to reddish-brown (Krantz and Walter 2009).

Clover mites usually reproduce parthenogenetically, developing from unfertilized eggs and their population is composed entirely of females (Ros et al. 2008). Males have been found only rarely. During her lifetime, a female lays approximately 70 eggs, which later develop into larval, protonymph, deutonymph and adult stages. A generation develops under optimum outdoor temperatures (21° C) within a month. This species has been found on more than 250 species of host plants such as alfalfa, peas, and clover, various weed species found in lawns, lawn grasses, certain ornamental plants, shrubs, and trees. The mites appear after the rainy season, and are usually active during spring and fall and inactive during summer and winter.

When their number increases around human habitations, especially if host plants are dried up or cut off, they have the tendency to enter homes and buildings through cracks and small openings around windows and doors. The mites appear to be quick moving dark spots to the naked eye, especially when crawling on light colored walls, windows, doors and cupboards. Inside houses,

they move to warm areas of the rooms. They can invade a house in enormous numbers; 250,000 were estimated to be present at one time on the floor of a bedroom (Houseman 2011). In Israel, a case of infestation with *Bryobia* sp. was reported from a house in Tel-Aviv in 1963 (Costa 1978).

Clover mites are pests of agricultural importance, feeding damage appears as small, irregular silver streaks on leaves, but may also occur on flowers. Large populations can cause areas of a lawn to turn yellow or brown (Gordon 1975, Jeppson et al. 1975).

Clover mites are not known to be parasites of humans or animals. They could however become a nuisance by their sheer presence, as quickly moving objects inside the houses thus annoying the inhabitants visually. They have been wrongly accused of being blood-sucking arthropods, because when crushed they create red colored spots, originating from the red pigments in their body fluids (for review see Bassett 1985; Alford 1994; Boland et al. 1998; Gomez and Mizell 2011).

CASE REPORT

We report the case of seven family members inhabiting a one-family house in Maale Michmash, a rural settlement in the Benjamin hills, north of Jerusalem. Since March 2012, the inhabitants observed numerous small arthropods walking quickly on the walls, cupboards and beds and they were annoyed visually by the presence of these creatures. Outside the house, large numbers of mites were seen on the walls and windows of

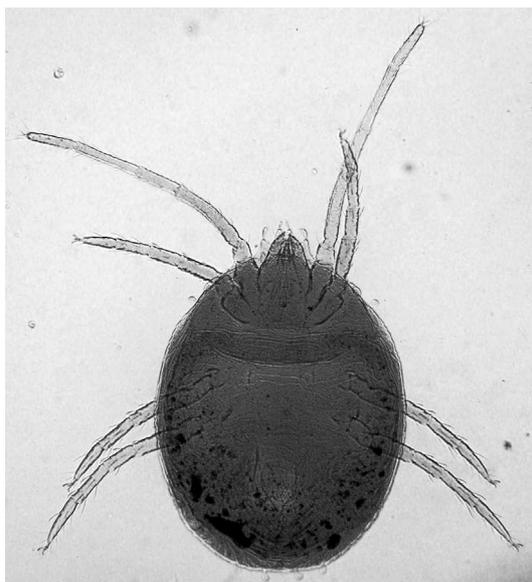


Fig. 1. Female of the clover mite, *Bryobia praetiosa*

the house as well as on *Dittrichia viscosa*, also known as false yellowhead, sticky fleabane, woody fleabane or yellow fleabane. Mites were also seen in neighboring houses. Several specimens were collected inside and outside the house and later identified as belonging to the species *B. praetiosa* (Fig. 1).

The infestation lasted for approximately 3 months, and disappeared more or less spontaneously, when the grass and the plants around the house died. During this time the inhabitants were disturbed by the physical appearance of the mites, especially in their beds.

DISCUSSION

Infestation of houses with phytophagous mites is well known worldwide. Different species of *Bryobia* and *Balaustium* (family Erythraeidae) enter homes and become a nuisance to the inhabitants. People usually are disturbed by the visual presence of these mites everywhere in the house and sometimes on their bodies. The emotional stress is even bigger when they are wrongly identified as blood-feeding ectoparasites (Newell 1963; Bassett 1985; Gomez and Mizell 2011).

Their medical and veterinary importance is not well established. Lindo and Grenn (1968) reported the case of a cat, which was infested with *B. praetiosa* and suffering from a generalized hyperemia of the skin. No ectoparasites were found on the skin of the cat and it was not clear whether the symptoms were caused by *B. praetiosa*. It was speculated that the lesions were due to mechanical irritation or actual biting by the mites, or were an

allergic manifestation to the mites or their secretions, or whether the presence of the mite caused sufficient irritation to result in self-mutilation by the host. Other authors reported pruritus, eczema and skin allergies caused by this mite (Newell 1963).

Household aerosol acaricides can be used to kill the mites indoors. A vacuum cleaner equipped with a hose and a soft brush attachment could be also helpful, but the mites should be brushed carefully to avoid crushing them and causing red-colored stains. A more aggressive approach would be to use a persistent acaricide of the infested vegetation and the outside walls of the habitation. A long-term method for reducing persistent clover mite invasions is by providing a grass-free band (50–60 cm wide) around the house. This can easily be accomplished by open areas of coarse sand or pea stone, or by installing a plant bed. Removing clovers and other groundcovers from the lawn may also help prevent mite numbers from building up on lawns. Sealing exterior cracks around doors and windows or in the foundation often prevents the migration of clover mites into a house. Planting flowerbeds with plants such as geranium, chrysanthemum, zinnia, marigold and salvia that are not attractive to clover mites might be helpful (Gomez and Mizell 2011).

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REFERENCES

- Alford, D.V. 1994. *A colour atlas of pests of ornamental trees, shrubs and flowers*. Wolfe Publishing Ltd., London, pp. 448.
- Bassett, P. 1985. *Bryobia* — the clover mite. In: N.W. Hussey and N.E.A. Scope (Eds). *Biological pest control. The glasshouse experience*. Blandford Press, Dorset, pp. 91–92.
- Bolland, H.R., Gutierrez, J. and Flechtmann, C.H.W. 1998. *World catalogue of the spider mite family (Acari: Tetranychidae)*. Brill, Leiden, pp. 392.
- Costa, M. 1978. *Insects anti man*. Hakibbutz Hameuchad Publ. House, pp. 286.
- Gomez, C. and Mizell, R.F. 2011. Clover mite *Bryobia praetiosa* Koch. Entomology and nematology department, Florida cooperative extension service, Institute of food and agricultural sciences, University of Florida. Document No. EENY 437. <http://edis.ifas.ufl.edu/in776>

- Gordon, S.C. 1975. Feeding damage by *Bryobia* mites to Brussels sprouts under grass. *Plant Pathology*, 24: 122.
- Houseman, R.M. 2011. Clover mite. University of Missouri extension, division of plant sciences. <http://extension.missouri.edu/publications/DisplayPub.aspx?P=g7358>
- Jeppson, L.R., Keifer, H.H. and Baker, E.W. 1975. *Mites injurious to economic plants*. University of California Press, Los Angeles, pp. 129.
- Krantz, W. and Walter, D.E. 2009. *A manual of acarology* (3rd ed.). Texas Tech University Press, Texas, USA, pp. 807.
- Lindo, D.E. and Grenn, H.H. 1968. *Bryobia praetiosa* (clover mite) infestation in a feline. *Canadian Veterinary Journal*, 9: 254–256.
- Newell, I.M. 1963. Feeding habits in the genus *Balaustium* (Acari: Erythraeidae), with special reference to attacks on man. *Journal of Parasitology*, 49: 498–502.
- Ros, V.I.D., Breeuwer, J.A.J. and Menken, S.B.J. 2008. Origins of asexuality in *Bryobia* mites (Acari: Tetranychidae). *BMC Evolutionary Biology*, 8: 153.