Research Note

ACULOPS CANNABICOLA *(FARKAS) (ACARI: ERIOPHYOIDEA): A NEW INVASIVE PEST OF* CANNABIS SATIVA *IN PUERTO RICO*[1,2]

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This is the first report of the hemp russet mite, *Aculops cannabicola* (Farkas, 1960), in Puerto Rico. The mite was observed in *Cannabis sativa* L. (Cannabaceae) plants grown in an indoor nursery in Salinas, mostly on female flowers, petioles, meristems and leaves. Severe damage to female flowers and foliage was observed on the plant samples (Figures 1A, B, C) during all stages of *A. cannabicola* present. Several keys for the identification of Eriophyoidea mites were used (Keiffer, 1966, 1975; Petanović et al., 2007). Dr. Ochoa Ron of the Systematic Entomology Laboratory (Agricultural Research Service, USDA, BARC-W-137 Beltsville, Maryland 20705, USA) confirmed our identification.

Keiffer (1975) divided eriophyoid mites into three families, Nalepellidae, Eriophyidae and Rhyncaphytoptidae, based on the number of setae on the shield and the location and type of mouthparts. In the case of the eriophyoid *A. cannabicola*, the female and male have a fusiform body, females having a light orange color, while nymph and larva stages are pale white. The length of adults is 110 to 210 µm approximately with males being smaller. According to Petanović et al. (2007), other characters that distinguish this species from other members of the genus are the external genital cover flap, the prodorsal shield and the dorsal annuli. The external genitalia cover flap in females measures between 12 µm and 14 µm long and 20 µm to 23 µm wide and has eight longitudinal ridges; in the male it has the same length and the cover flap measures 17 µm to 18 µm wide. The prodorsal shield in females has an acuminate frontal lobe and dorsal tubercles, well developed on rear margin. The number of dorsal annuli in females ranges between 22 and 24; males have 22. The specimen's voucher Acc.no. 951-2023 is deposited at the Entomology Laboratory at the Agricultural Experiment Substation of Juana Díaz.

The hemp russet mite (HMR) was reported in the Midwestern USA, Central Asia, Poland, Serbia, Hungary, and Italy (Turillazzi et al., 2022; Farkas, 1960; Skoracka et al., 2005; Ripka, 2007; Petanović et al., 2007; Cranshaw et al., 2019). Host plants are restricted to the Cannabaceae family particularly the genus *Cannabis* spp. Typical symptoms of high HRM infestations frequently include curling of leaf edges and bronzing/rusting appearance of leaf tissue (Villanueva et al., 2023). High populations occur in

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FIGURE 1. A) Damage from *Aculops cannabicola* on female flower of *Cannabis sativa*. B) Hemp russet mites on meristems of *Cannabis sativa*. C) *Aculops cannabicola* adult: AD-Prodorsal shield, D-Dorsal view of annuli, L-Lateral view of annuli, PM-Lateral view of posterior opisthosoma.

protected production systems as well as in open fields, and severe injury to flower buds can reduce flower size and cannabinoid yields (Villanueva et al., 2023).

The hemp russet mite is considered a severe pest in *Cannabis* spp. (Petanović et al., 2007; Turillazzi et al., 2022). Once mites have settled in a protected production system, they are able to proliferate continuously and can be extremely difficult to eradicate (Hayes, 2022). Due to the high risk of this pest in indoor cultivation, economic thresholds for action against HRM should be lower than in outdoor cultivation, in which continuous sampling is recommended (Pedigo, 1999).

Due to the high risk of this pest in protected production systems and the possibility of virus transmission, a good management system will be necessary to control it. The future impact of this invasive species on a Cannabis industry that has a market value of $50 million (Abexux, 2019) annually in Puerto Rico is unknown. Therefore, an evaluation of the russet mite population in protective production systems and outdoor cultivation is essential to determine a sustainable management. Furthermore, monitoring for viral symptoms transmitted by this mite species is recommended.

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