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FIRST RECORD OF *ANTHONOMUS EUGENII* (COLEOPTERA: CURCULIONIDAE) IN ITALY

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Anthonomus (Anthonomus) eugenii Cano, 1894 (Coleoptera: Curculionidae), internationally known as the pepper weevil, is a member of the genus *Anthonomus* Germar, 1817 of the subfamily Curculioninae Latreille, tribe Anthonomini C. G. Thomson (Alonso-Zarazaga & Lyal 1999). *Anthonomus* spp. are primarily Holarctic and tropical American, and develop inside fruits of several cultivated and wild plants. In addition to the primary damage to fruits, these species are reported to cause the abortion of flowers as a result of adult feeding and oviposition behavior (Genug & Ozaki 1972; Riley & Sparks 1995; Rodríguez-Leyva et al. 2007). *Anthonomus eugenii*, described from Mexico (Cano & Alcacio 1894), is distributed in Central America, southern parts of North America, Hawaii and French Polynesia, but its infestation of greenhouses in Canada probably was eradicated (Costello & Gillespie 1993; Clark & Burke 1996; Gaag & Loomans 2013).

In 2012 the pepper weevil was detected for the first time in Europe in the Westland greenhouse area of the Netherlands and eradicated (EPPO 2013; Gaag & Loomans 2013). *Anthonomus eugenii* develops on cultivated and wild species of the solanaceous genera *Capsicum* and *Solanum* (Clark & Burke 1996), being, however, a pest only of *Capsicum* (Morales 1989; Patrock & Schuster 1992). Recorded crop losses due to this pest varied from 30% to 90%; and chemical control did not always lead to reduced infestations so that often crops were abandoned because of concerns of shipping infested fruit to markets (García-Nevárez et al. 2012). Several studies were carried out on the use of biological control agents. The pteromalid *Catolaccus hunteri* (Crawford, 1908) and the braconid *Triaspis eugenii* Warton & López-Martínez, 2000 are considered the most important parasitoids to reduce pepper weevil infestations (Rodríguez-Leyva et al. 2007; Vásquez et al. 2005; Schuster 2012).

In Oct 2013 heavy infestations of *A. eugenii* were found associated with sweet pepper in greenhouse and field crops in the Lazio region, Italy (N 41° 17' 53.47" E 13° 17' 50.77"; N 41° 17' 53.59" E 13° 17' 33.00"; N 41° 20' 42.83" E 13° 20' 42.82"; and N 41°

22' 21.89" E 13° 23' 13.41"). The weevil was found mainly attacking sweet pepper (*Capsicum annum* L.) buds and not fully developed fruits, causing their premature abscission. Some infested fruits on plants showed blackened seeds; and inside several fruits that dropped to the soil and in others directly collected on plants, we observed larvae, pupae and adults of the weevil. Some fruits also showed exit holes. The Italian area of outbreak is well-defined, surrounded on 3 sides by natural barriers, i.e., the western coast line and hills on the south and east. The Plant Protection Service of the Lazio Region started a program to eradicate the weevil from the infested areas by interdiction of *Capsicum* cultivation in the field and greenhouses, prohibition of production, marketing and possession of potted *Capsicum* plants, and destruction of wild Solanaceae (Regione Lazio 2013).

In the near future we plan accurate population monitoring by direct sampling and with the use of yellow sticky traps or pheromone baited traps as suggested by Riley & Schuster (1994) and Riley & Sparks (1995).

Voucher specimens were deposited in the Entomological Museum of the Department of Agriculture, Forests, Nature and Energy, University of Tuscia, Viterbo, Italy, in the Entomological Museum of the Department of Agriculture University of Naples Federico II, Italy and in the Enzo Colonnelli collection, Rome, Italy.

SUMMARY

Anthonomus eugenii Cano (Coleoptera: Curculionidae) was observed for the first time in Italy and the Mediterranean Region attacking sweet pepper (*Capsicum annum* L.; Solanaceae) in greenhouses and in fields in the coastal area of the Lazio Region of Italy. The incursion, detected in Oct 2013, was a heavy infestation of sweet pepper buds and not fully developed fruits, and causing their premature abscission. The outbreak area was delineated by the coast on the west, and hills on the south and east.

Key Words: weevil, invasive species, pepper pest, Europe

RESUMEN

Se observó *Anthonomus eugenii* Cano (Coleoptera: Curculionidae) por primera vez en Italia y la región del Mediterráneo atacando plantas de chile dulce (*Capsicum annuum* L.; Solanaceae) en invernaderos y campos de la zona costera de Lazio, Italia. La incursión, que se detectó en octubre del 2013, fue una infestación severa de los brotes de chile dulce y frutos no completamente desarrollados, y causando su abscisión prematura. La zona afectada fue delimitada por la costa en el oeste y por las montañas en el sur y el este.

Palabras Clave: picudo, gorgojo, especies invasoras, plaga de chile dulce, Europa

REFERENCES CITED

- ALONSO-ZARAZAGA, M. Á., AND LYAL, C. H. C. 1999. A world catalogue of families and genera of Curculionidae (Insecta: Coleoptera) (Excepting Scolytidae and Platypodidae). Entomopraxis, Barcelona, 315 pp.
- CANO, AND ALCACIO, D. 1894. El barrenillo. La Naturaleza (2)2: 377-379.
- CLARK W. E., AND BURKE, H. R. 1996. The species of *Anthonomus* Germar (Coleoptera: Curculionidae) associated with plants in the family Solanaceae. Southwestern Entomol. Suppl. 19: 1-114.
- COSTELLO, R. A., AND GILLESPIE, D. R. 1993. The pepper weevil, *Anthonomus eugenii* as a greenhouse pest in Canada. Bull. SROP 16: 31-34.
- EPPO 2013. *Anthonomus eugenii*. Data Sheet on Quarantine Pests. N. 202, 3 pp.
- GAAG, VAN DER, D. J., AND LOOMAN, A. 2013. Pest risk analysis for *Anthonomus eugenii*. Version 3.0. Netherlands Food and Consumer Product Safety Authority, Utrecht, 64 pp.
- GARCÍA-NEVAREZ, G., M. CAMPOS-FIGUEROA, N. CHÁVEZ-SÁNCHEZ, AND QUIÑONES-PANDO, F. J. 2012. Efficacy of biorational and conventional insecticides against the Pepper Weevil, *Anthonomus eugenii* Cano (Coleoptera: Curculionidae) in the South Central Chihuahua. Southwestern Entomol. 37(3): 391-401.
- GENUG, W. G., AND OZAKI, H. Y. 1972. Pepper weevil on the Florida East Coast. Belle Glade mimeo report. University of Florida. 15 pp.
- MORALES, H. 1989. Attracción y colonización de *Anthonomus eugenii* Cano (Coleoptera: Curculionidae) a diferentes Solanaceas hospederas: posibilidades de control cultural en chiledulce. Thesis, CATIE, Turrialba, Costa Rica, 103 pp.
- PATROCK, R. J., AND SCHUSTER, D. J. 1992. Feeding, oviposition, and development of the pepper weevil (*Anthonomus eugenii* Cano) on selected species of Solanaceae. Trop. Pest Mgt. 38: 65-69.
- REGIONE LAZIO. 2013. Misure Fitosanitarie d'emergenza intese a prevenire la diffusione nel territorio regionale dell'*Anthonomus eugenii* (Cano). Delimitazione e approvazione misure di eradicazione (D. D. n° G04164). Available at <http://www.agricoltura.regione.lazio.it/sfr/>
- RILEY, D. G., AND SCHUSTER, D. J. 1994. Pepper weevil (Coleoptera: Curculionidae) adult response to colored sticky traps in pepper fields. Southwestern Entomol. 19: 93-107.
- RILEY, D. G., AND SPARKS, A. N. 1995. The pepper weevil and its management. Texas Agric. Ext. Serv., Texas A & M University. College Station. L-5069.
- RODRÍGUEZ-LEYVA, E., STANSLY, P. A., SCHUSTER, D. J., AND BRAVO-MOSQUEDA, E. 2007. Diversity and distribution of parasitoids of *Anthonomus eugenii* (Coleoptera: Curculionidae) from Mexico and prospects for biological control. Florida Entomol. 90(4): 693-702.
- SCHUSTER, D. J. 2012. Response of *Catolaccus hunteri* (Hymenoptera: Pteromalidae) to colored sticky traps in the laboratory. Florida Entomol. 95(2): 501-502.
- VÁSQUEZ, E., DEAN, D., SCHUSTER, D. J., AND VAN ETTEN, P. 2005. A laboratory method of rearing *Catolaccus hunteri* (Hymenoptera: Pteromalidae), a parasitoid of the pepper weevil (Coleoptera: Curculionidae). Florida Entomol. 88(2): 191-194.