Zonosemata electra (Diptera: Tephritidae)

This short description has been prepared in the framework of the EPPO Study on Pest Risks Associated with the Import of Tomato Fruit. The whole study can be retrieved from the EPPO website.

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Africa	Asia	Oceania	North America	South-Central America and Caribbean

***Zonosemata electa* (Diptera: Tephritidae)**

Why	Identified in the EPPO tomato study. *Z. electa* is a pest of Solanaceae. It seems to be a sporadic pest of pepper and eggplant, but tomato is also a host.
Where	**EPPO region**: absent **North America**: Canada (southern Ontario & Quebec), USA (Iowa, Massachusetts, south to Texas & Florida)
Climatic similarity	High-medium. 13 common climates considering the countries listed above, but likely to be lower (possibly 6 considering the specific States where mentioned and possibly under protected conditions in Canada – no details found).
On which plants	Solanaceae. Larvae feed on fruit of *S. carolinense*, *S. scabrum*, *Physalis longifolia* var. *subglabrata* (perhaps, as record not well documented), *Capsicum annum* (sweet pepper), *S. lycopersicon* (tomato), *S. aculeatissimum*, *S. melongena* (eggplant) incl. var. *esculentum* (Norrbom, 2003, citing others). Records for a *Rosa* and for *S. elaeagnifolium* are doubtful.
Damage	*Z. electa* larvae feed in and develop in fruit. It attacks healthy fruit. On pepper (Bessin, 2003), *Z. electa* is a sporadic pest in parts of the USA. Eggs are deposited in the flesh of the fruit, and larvae tunnel in the cap of the fruit and in the fruit. There is little evidence of attack on the outside of the fruit, but considerable internal tunnelling and discoloration. In Georgia, it is a sporadic to rare pest attacking pepper and eggplant, rarely tomato (University of Georgia, ND).
Dissemination	Adults fly. Eggs are laid in fruit, larvae develop in fruit, pupae in the soil.
Pathway	Fruits and vegetables of host plants, soil, from countries where *Z. electa* occurs.
Possible risks	Tomato, sweet pepper, eggplant are major crops in the EPPO region. The climatic similarity according to the EPPO Study between the area where it occurs and the EPPO region is medium. It may also establish in glasshouses. Where it occurs, *Z. electa* is controlled by cultural control (removal and destruction of rotted and infested fruit, rotation, destruction of the alternate host *S. carolinense*) and sprays based on trapping (yellow sticky traps) (for pepper, Bessin, 2003). Larvae are difficult to detect in fruit until they produce an exit hole (University of Georgia, ND).
Categorization	Quarantine lists of Japan 2011, Mexico 2011, Peru 2013, Korea Rep 2011 (from the IPP)
Sources	Bessin R. 2003. Pepper maggot in Kentucky. Zonosemata electa (Say) • Family: Tephritidae . ENTFACT 316. University of Kentucky, Cooperative Extension Service. http://www2.ca.uky.edu/entomology/entfacts/ef316.asp Carroll LE, Norrbom AL, Dallwitz MJ, Thompson FC. 2004 onwards. Pest fruit flies of the world – larvae. Version: 8th December 2006. http://delta-intkey.com. Norrbom. 2003. USDA SEL. Pepper maggot. The Diptera site. Systematic entomology laboratory, ARS-USDA and Department of entomology NSHM-SI http://www.sel.barc.usda.gov/diptera/tephriti/Zonosem/electa.htm Zonosemata electa (Say) Quarantine lists of Japan 2011, Mexico 2011, Peru 2013, Korea Rep 2011(on the IPP) University of Georgia. ND. Pepper maggot (Order: Diptera, Family: Tephritidae, Zonosemata electa (Say)). http://www.ent.uga.edu/veg/solanaceous/pepper_maggot.pdf