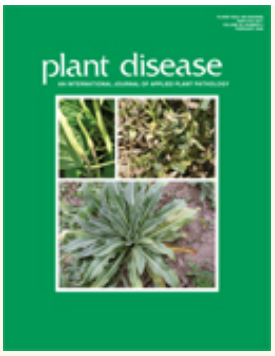

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Disease Notes

Identification of New Alternative Weed Hosts for *Iris yellow spot virus* in the Pacific Northwest

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Iris yellow spot virus (IYSV; family *Bunyaviridae*, genus *Tospovirus*) is an economically important viral pathogen of onion bulb and seed crops in several parts of the United States and the world (1). IYSV is primarily transmitted by onion thrips (*Thrips tabaci*) and there is no evidence of seed transmission (1). However, susceptible cultivated and weed species could serve as reservoirs of inoculum from which thrips could acquire the virus to introduce and spread it in onion fields. Samples from asymptomatic and symptomatic volunteer onion plants in some of the commonly cultivated crops in the region (corn, wheat, grapes, mint, carrot, alfalfa, and sugar beets) and several common weeds in and around onion bulb and seed fields with a history of IYSV in Idaho and Washington were collected during the months of July, August, September and October of 2006. More than 175 samples from 35 plant species were analyzed for IYSV by a commercially available ELISA kit (Agdia Inc., Elkhart, IN). With the exception of a few volunteer onions, none of the other plant species had any symptoms of virus infection. Symptoms on volunteer onions included characteristic diamond-shaped lesions. To confirm the presence of IYSV in the ELISA-positive samples, total nucleic acids were extracted (2) and used in a reverse transcription (RT)-PCR assay (3). The primer pair consisted of 5'-TAA AAC AAA CAT TCA AAC AA-3' and 5'-CTC TTA AAC ACA TTT AAC AAG CAC-3'. This primer pair flanks the nucleocapsid (N) gene of IYSV and generates an approximate 1.2-kb amplicon (3) that includes the complete N gene. An amplicon of expected size was obtained from each IYSV-positive sample. The amplicons were cloned and sequenced. There was a 95% sequence identity with known IYSV sequences. While several weed species gave ELISA values that suggested the presence of IYSV, results of RT-PCR assays failed to confirm the presence of the virus. This discrepancy between ELISA and RT-PCR results could be due to nonspecific reaction in ELISA (4) or difficulty associated with obtaining RT-PCR-quality templates for amplification. Only volunteer onions and the following weeds tested positive for IYSV by ELISA and RT-PCR: redroot pigweed (*Amaranthus retroflexus*), puncturevine (*Tribulus terrestris*), kochia (*Kochia scoparia*), prickly lettuce (*Lactuca serriola*), and common lambsquarters (*Chenopodium album*). Of these, redroot pigweed was recently reported to be ELISA-positive for IYSV (1). This

information on the wider natural host range of IYSV, including potential alternative hosts that could serve as virus reservoirs, is useful for a better understanding of the disease epidemiology and in developing an integrated management strategy for reducing the impact of this disease.

References: (1) D. Gent et al. Plant Dis. 90:1468, 2006. (2) H. R. Pappu et al. HortScience 40:697, 2005. (3) H. R. Pappu et al. Arch. Virol. 151:1015, 2006. (4) T. N. Smith et al. Plant Dis. 90:729, 2006.