

A Disease of Sesame in Iran Caused by *Spiroplasma citri*

M. Salehi and K. Izadpanah

ABSTRACT. Sesame yellows (SY) is a disease occurring in both citrus and non-citrus growing areas of Fars, Kerman, Isfahan and Yazd provinces in Iran. SY infected material collected in Zarghan in Fars Province was graft transmitted to healthy sesame in the greenhouse. Attempts to transmit the disease by three species of aphid, *Myzus persicae*, *Aphis fabae* and *Acyrtosiphon pisi*, were unsuccessful, but the disease was transmitted by the leafhopper *Circulifer haematoceps* to both sesame and periwinkle resulting in stunting, narrow leaves, interveinal and total leaf chlorosis, rapid decline in flower size and number, bud proliferation and wilting. These symptoms are similar to those caused by the citrus stubborn agent, *Spiroplasma citri*. SY-infected sesame from the field and the greenhouse and infected periwinkle reacted positively with *S. citri* antiserum in DAS-ELISA, confirming that *S. citri* is the cause of SY in Iran. Its occurrence is independent of citrus cultivation.

Sesame is grown as a cash crop in many areas of Iran. In a survey of sesame diseases in 1993-94, a disease tentatively designated sesame yellows (SY) was observed in many locations. The major symptoms are small, chlorotic, cupped and thickened leaves, chlorosis of other plant parts including seed capsules, absence of inflorescence or production of abnormal flowers which may form small seedless capsules, defoliation, stunting and death.

A survey was carried out for SY and it was found in all the provinces surveyed (Fars, Kerman, Isfahan and Yazd). Up to 15% infection was observed in fields in Fars. Mixed infection of sesame phyllody (3) and SY was also observed. A sesame plant with SY symptoms collected in Zarghan (north of Shiraz) in Fars province was transferred to the greenhouse and used as a source for transmission studies. The disease was successfully transmitted by side veneer grafting to healthy sesame. For insect transmission, three species of aphid, *Myzus persicae*, which

colonized plants in the field, *Aphis fabae* and *Acyrtosiphon pisi*, and two species of leafhopper, *Circulifer haematoceps* and *Orosius albicinctus*, were collected in sesame fields. Only *C. haematoceps* transmitted SY to both sesame and periwinkle. It was also found to transmit SY and phyllody simultaneously. In periwinkle, characteristic symptoms of *S. citri* infection appeared, namely stunting, narrow leaves, interveinal chlorosis, totally chlorotic leaves, rapid decline in flower size and number, bud proliferation and wilting.

An antiserum to *S. citri*, kindly supplied by Dr. H. Rahimian, was used in DAS-ELISA (2) to test for the pathogen in both field and experimentally infected plants. All were positive. We conclude that SY is associated with *S. citri* in Iran. Kersting et al. (1) have also reported infection of sesame by *S. citri* in Turkey. The presence of SY in non-citrus growing Isfahan and Yazd provinces indicate that citrus is probably not a source of the disease. Sesame has been grown in Iran for much longer than citrus.

LITERATURE CITED

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