Research Paper :

Determination of hosts of sunflower necrosis virus

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SUMMARY

Various crop plants tested by mechanical sap and thrips inoculation, the virus infected *Helianthus annuus* (cv. KBSH-44), *Citrullus lanatus* (cv. Arka Manik), *Cucurbita moschata* (cv. Arka Suryamukhi), *Arachis hypogaea* (cv. JL-24), *Lablab purpureus* (cv. HA-3), *Macrotyloma uniflorum* (cv. PHG-9), *Vigna unguiculata* (cv. C-152), *Nicotiana tabacum* (cv. Xanthi) and *Glycine max* (cv. KB-79). The highest mean per cent transmission was recorded on *Helianthus annuus* (cv. KBSH-44) both by sap inoculation and thrips transmission (53.33 and 26.67, respectively). Among thirty six weed plants tested, twenty four weeds *viz.*, *Lagascea mollis*, *Alternanthera sessilis, Commelina benghalensis, Crotalaria spectabilis, Euphorbia hirta, Cassia obtusifolius, Ocimum sanctum, Sida rhombifolia, Oxalis corniculata, Physalis minima, Galinsoga parviflora, Euphorbia geniculata, Solanum nigrum, Phyllanthus niruri, Malvestrum coromandelianum, Ageratum conyzoides, Achyranthus aspera, Abutilon indicum, Ocimum canum, Crotalaria striata, Bidens pilosa, Stachytarpeta indica, *Acanthospermum hispidum* and *Xanthium strumarium* were able to show symptoms through sap and thrips inoculation. Highest mean per cent transmission however was observed in case of *Achyranthes aspera* (48.00) through sap and in *Galinsoga parviflora* (25.00) through thrips.

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A serious virus disease on sunflower with necrotic symptoms causing severe yield loss was reported to occur around Bangalore (Anonymous, 1997; Singh *et al.,* 1997). Because of its fast spreading nature, this necrosis virus was considered as one of the deadly virus diseases on this crop in India (Nagaraju *et al.,* 1998). Necrosis virus can cause infection at any stage of the plant growth causing necrosis of a part of the leaf lamina and making the leaf to twist, followed by varied type of necrosis and mosaic symptoms (Nagaraju and Hanumantha Rao, 1999). Ajith Prasad and Nagaraju (2005) investigated and determined the disease transmission through sap and *Thrips palmi* (Karny). Host-range studies carried out by Ramaiah *et al.* (2001) revealed that an isometric virus causing sunflower necrosis disease could infect members of plants belonging to families Amaranthaceae, Chenopodiaceae and Fabaceae. Present study was conducted in order to know the various plants and weed species to which the virus can infect.

MATERIALS AND METHODS

An attempt was made to study the transmission of sunflower necrosis virus to thirty nine different crop plants and thirty seven different weeds found in and around sunflower fields at Zonal Agricultural Research Station, GKVK, UAS, Bangalore belonging to different families *viz.*, Asteraceae, Brassicaceae, Cucurbitaceae, Caricaceae, Euphorbiaceae, Fabaceae, Malvaceae, Pedaliaceae, Solanaceae, Convolvulaceae, Amranthaceae, Labiateae, Commelinaceae, Portulacaceae and Oxalidaceae, by mechanical sap and thrips inoculations.

Transmission of SNV by mechanical sap inoculation:

A set of thirty nine crop plants and thirty seven weed plants (three replications each) were sap inoculated at glasshouse conditions. Young tender leaves showing typical symptoms