

Research Paper :

Eco-friendly management of tomato leaf curl disease



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International Journal of Plant Protection, Vol. 4 No. 2 (October, 2011) : 321-323

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SUMMARY

Leaf curl is one of the most widespread and destructive viral diseases of tomato. The use of neem leaf extracts 10% in combination with monocrotophos (0.25%) and endosulfon (0.2%) was found most effective in reducing the whitefly population and tomato leaf curl virus incidence and promoting the yield of tomato as compared to other treatments.

Srivastav, Sunil Kumar, Ansari, N.A. and Tewari, J.P. (2011). Eco-friendly management of tomato leaf curl disease. *Internat. J. Plant Protec.*, 4(2): 321-323.

Key words :

Eco-friendly management, TLCV, Whitefly, Leaf extracts, Insecticides, Tomato leaf curl

Tomato (*Lycopersicon esculentum* Mill.), a member of family Solanaceae is grown extensively in adjacent to big cities, because of the readily available market for its fruit vegetable. At places in eastern Uttar Pradesh, tomato is cultivated throughout the year. This crop has been known to may be susceptible to many bacterial, fungal, and viral pathogens. Among them, tomato leaf curl disease caused by TLCV is the most important and serious threat to tomato cultivation in India (Varma,1993; Ansari and Tewari, 2004). In India, the disease was first reported by Vasudeva and Samraj in 1948. In nature, the disease is transmitted by vector whitefly (*Bemisia tabaci* Genn.). The disease affects all stages of the plants causing 38-100 per cent yield loss, depending on the stage of the crop at the time of infection (Butter and Rataul, 1981; Das Gupta *et al.*, 2003; Ansari, 2007).

Thus, its cultivation has been hampered by TLCV disease, resulting in enormous losses in the form of reduced yield; Hence, in order to find out suitable management practices for TLCV diseases the present investigation was carried out the using insecticide and plant extracts known to have antiviral properties.

MATERIALS AND METHODS

A field experiment was conducted during 2009-2010 and 2010-11 in M.L.K. (P.G.) College field to test the efficacy of plant extracts and insecticides in managing TLCV disease. The experiment was laid out in randomized block design with three replications with plot size 5x4 meter and spacing maintained 80x80 cm. Local susceptible variety, Pusa Ruby was used and all agronomic package of practices were followed for getting higher yield. Neem, Parthenium and Clerodendrum leaf extracts and insecticides, monocrotophos (0.25%) and endosulfon (0.2%) were evaluated against TLCV disease.

Leaves of plant species were collected, dried and powdered separately. One kg. powder of each species was suspended in 5 litres water, heated at 50°C for one hour, filtered and volume made up of 10 liters by adding water to get 10 per cent concentration. Each plant extract at 10 per cent concentration was mixed with monocrotophos (0.25%) and endosulfon (0.2%) and used for spraying. First spray was given at nursery stage and subsequent sprays were given at 15 days after transplanting, pre-flowering and fruiting stages. Observations

Received :

May, 2011

Accepted :

August, 2011