

Studies on Residues of Flufenzin and Fenpyroximate on Brinjal

R.L. NAIK, V.D. KALE AND M.D. DETHE

International Journal of Plant Protection, Vol. 2 No. 1 : 38-41 (April to September, 2009)

See end of the article for authors' affiliations

Correspondence to :

R.L. NAIK

Department of

Entomology.

College of Agriculture

PUNE (M.S.) INDIA

SUMMARY

After application (twice) of flufenzin @ 100 and 200 g a.i./ha and fenpyroximate @ 25 and 50 g a.i./ha, residue level in brinjal infested from red spider mite dissipated within 7 and 10 days and 3 and 5 days, respectively. The levels were reduced in the range of 43 to 48 and 46 to 55.6% due to washing. Combined effect of both washing and cooking, further reduced the levels in the range of 70 to 75% and 67 to 70% in fenpyroximate and flufenzin.

Key words :

Brinjal, Residues, Flufenzin and fenpyroximate, Red spider mite, *Tetranychus* sp.

Red spider mites (*Tetranychus* sp.) have now become serious menace for the cultivation of vegetables. Intensive year-round cultivation often leads to increased flare-ups necessitating more rigid pest control. Chemical control mostly constitutes use of broad-spectrum insecticides/acaricides, which poses deleterious impact on biodiversity resulting into reduction of overall population of natural enemies and other beneficial biological species. Repeated use of such chemicals and/or increase in their dosages have unnecessarily led to severe problems such as additional insecticide cost, elimination of beneficial fauna, unintended toxic residues and more importantly, the ability of pests to adapt to high pesticides use environment. In turn, field management has now become a more difficult task.

In recent years, the emphasis is being laid on low risk acaricide active at low dose and is less harmful to non-targeted species. New generation acaricides with novel chemistries are being developed and claimed to be selective against target mite species with little or no effect on beneficials / environment. Two such new molecules viz., Fenpyroximate 5 EC (5%) and Flufenzin 200 SC (20%) were selected for the studies. Fenpyroximate is a contact poison belonging to pyrazole group and acts as mitochondrial electron transport- inhibitor. Flufenzin is a mite growth regulator (new tetrazine analogue) having both contact and translaminar action. Contemplating their use on vegetables, especially on brinjal, the data on magnitude of residues of these compounds after application is of immense importance from the consumers' safety point of view.

MATERIALS AND METHODS

Acaricides viz., fenpyroximate (@ 25 and 50 g a.i./ha) and flufenzin (@ 100 and 200 g a.i./ha) were evaluated after second spray under the field conditions for studying their dissipation pattern and the residue levels in/on brinjal fruits, both processed and unprocessed. Pesticide residues were analyzed in edible quality fruits collected periodically after the last spray to decide the safety of treatments to consumers. Fruit samples from each plot were collected at an interval of 0(1h), 1, 3, 5, 7 and 10 days after the last treatment application and subjected to analysis by extraction, cleanup and estimation. The reference standard of parent compound and method employed for residue analysis was obtained from the respective manufactures. Revised-phase high performance liquid chromatography (HPLC) with ultraviolet detection at specified wavelength was used to determine residues of both the acaricides. Percentage recovery experiments validated the suitability of the analytical method. The linearity of the detector was determined using calibration standards. Peak identification was made by comparing the characteristic retention times of peaks in the standard chromatograms and sample chromatograms. Standards were injected at the beginning and at the end of the analysis of asset of samples to evaluate stability of chromatography system and the standards. All the analyses were carried out in duplicate and the data were analyzed statistically to interpret the results.

Fenpyroximate:

Residues were extracted as per the

Accepted :
January, 2009