IRAC Susceptibility Test Methods Series

Method No: 013

***Version: 3** (June 2009)*

Details:

Method:	No 013 (Formally Method No. 4c)	 *Photograph Courtesy of: Cornell University IPM Program*
Status:	Approved	
Species:	*Panonychus ulmi*	
Species Stage	Adult	
Product Class:	*METI acaricides (fenpyroximate)*	
Comments:		

Description:

Materials:
Perspex holding cells, rubber bands, 100-ml glass beakers for diluting formulations, 1-ml disposable plastic syringes for liquids, fine sable brushes (to reduce risk of cross contamination it is advisable to use separate brushes for manipulating mites for each treatment), hand lens (minimum 10x) or binocular microscope, maximum/minimum thermometer.

Method:
(a) Collect adult mites from the field. A population density of at least 10 adult mites per leaf is recommended. If it is not possible to collect sufficient mites at any one time, numbers may be increased by maintaining temporary cultures on untreated related shrubs such as myrobalan or cherry plum (*Prunus cerasifera)*.

(b) Collect a supply of untreated myrobalan or *Prunus cerasifera* leaves.

(c) Prepare 100ppm and 10ppm solutions of test solutions. The use of a wetter is not recommended. The lower concentration is a discriminating dose with an expected mortality of greater than 98%, and the higher concentration provides a measure of the intensity of resistant types present. Survivors at 100ppm are considered to be resistant to 10 times the discriminating dose.

(d) Dip individual leaves for 5 seconds in 100-ml of the required concentration of acaricide and allow leaves to dry before use. Each leaf is then sandwiched in a Perspex holding cell (fig. 1) so that the upper leaf surface is exposed internally and the petiole extends outside the cell into a 3-cm scintillation vial containing water. Use a minimum of five replicates per treatment. Leaves dipped in water plus emulsifier should be used as controls.

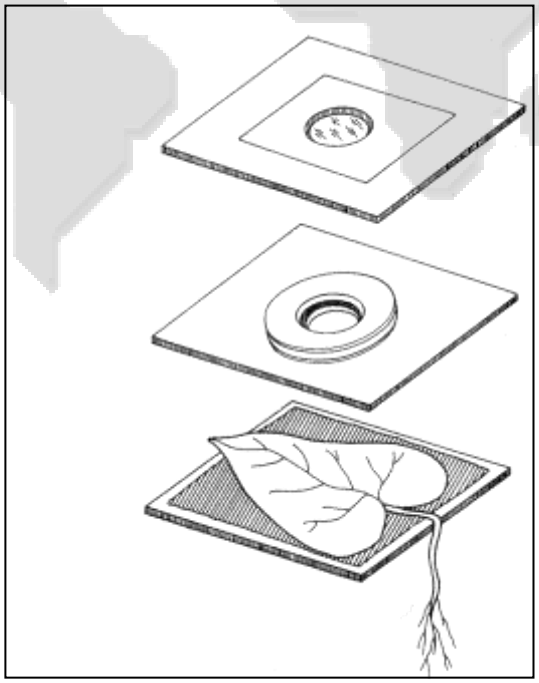
(e) Use a fine sable brush to place 10 adult female mites onto the leaf surface and close the holding cell using rubber bands. Batches of fully-assembled cells are stored together on wet cotton wool in a plastic seed tray.

(f) Maintain at a temperature of 20-25°C, under low light intensity or dark conditions, avoiding exposure to direct sunlight.

(g) Using a hand lens or binocular microscope, assess mortality after (24, 48) 72 hours. Use a sable brush to stimulate individual mites, recording those that fail to show any signs of movement as 'dead'.

(h) Express results as percentage mortality and correct for untreated mortality using Abbott's formula. Control mortality should be recorded.

Diagram:



Percautions & Notes:

Ideally, fresh solutions should be prepared for each bioassay using a premixing procedure that avoids excessive dilution and maintains formulation integrity. If material is limited, stock solutions can be stored in a refrigerator for a short period/few days and fresh solutions prepared on a daily basis.

References & Acknowledgements:

None

For further information please contact the IRAC International Coordinator:
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