IRAC Susceptibility Test Methods Series

Method No: 012

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

Details:

Method:	No. 012 (Formally Method No.4b)	 *Photograph Courtesy of: Cornell University IPM Program*
Status:	Approved	
Species:	*Panonychus ulmi*	
Species Stage	Adult	
Product Class:	Suitable for METI acaricides fenazaquin, pyridaben & tebufenpyrad	
Comments:		

Description:

Materials:
Plastic Petri dishes (4-5-cm diameter), glass bottles/beakers (5-cm internal diameter, 10-cm deep) for dipping test liquids, 100-ml glass beakers for dilution of 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 adult 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) Prepare 100ppm and 10ppm solutions of test liquids. 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.

(c) Dip Petri dishes and lids in test solutions for 30 seconds, drain for 10 seconds, and allow to dry for at least 30 minutes before use. Use a minimum of five replicates per treatment. Dishes dipped in water plus emulsifier should be used as controls.

(d) Place 20 adult mites in the base of each dish using a fine sable brush commencing with the lowest concentration. Cover each dish with a lid ensuring mites cannot escape, place in a holding tray and cover with opaque tissue paper.

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

(f) Using a hand lens or binocular microscope, assess mortality after 3 hours (fenazaquin, tebufenpyrad) or 4 hours (pyribaden) according to the speed of action of the compound. Use a sable brush to stimulate individual mites, recording those that fail to show any signs of movement as 'dead'.

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

Percautions & Notes:

The test is designed for use with disposable plastic Petri dishes. Similar-sized re-useable glass dishes may also be used. Contaminated dishes are cleaned by soaking overnight in a dilute Decon solution.

Ideally, fresh solutions should be prepared for each bioassay using a premixing procedure that ensures 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