IRAC Susceptibility Test Methods Series

Method No: 014

Version: 3 (June 2009)

Details:

Method:	No. 014 (Formally Method No 10b)	 *Photograph Courtesy of: Jack T. Reed, Mississippi State University*
Status:	Approved	
Species:	*Frankliniella occidentalis*	
Species Stage	Larvae	
Product Class:	For insect growth regulators e.g. lufenuron	
Comments: None		

Description:

Materials:
Plastic 30-ml Medi cups and lids or similar vials with closure, pods of French, haricot or green beans, aspirator/pooter, 200-ml glass beakers, six 250-ml measuring cylinders and pipette for dilution of formulations, wetter (Tween 20 or equivalent), Vaseline or liquid paraffin, mesh, foreceps, fine sable brush, hand lens (minimum 10x) or binocular microscope, max./minimum thermometer.

Sampling:
Collect adult thrips from the test locality by sampling flowers and shaking them into a clean plastic bag to dislodge the thrips. Maintain thrips in a cool place (e.g. cooler box) to reduce activity. Adult thrips may be collected and transferred from the bag using an aspirator. Use only healthy live thrips for bioassay purposes.

Method:
a) Cut bean pods into 20mm length sections and seal the cut ends with Vaseline or liquid paraffin. This prevents thrips from hiding in the cracks of the cut ends and the bean sections from drying out.

b) Thrips larvae of the required age for bioassay are obtained by breeding. To obtain eggs, transfer ca. 20 adult female thrips to a Medi cup supplied with a freshly cut pod section for a period of 8h or overnight, after which time the thrips should be removed. Incubate eggs at 25°C, minimum photoperiod of 16h and moderately high light intensity (not direct sunlight), until the desired developmental stage is reached.

b) Prepare test solutions by dilution of formulations in distilled water containing 0.005% Triton X-100, Tween 20 or equivalent emulsifier to act as a supplementary wetting agent at very low insecticide concentrations. Formulations should be pre-mixed at a high concentration first to ensure the creation of a stable formulation before dilution to the recommended test concentrations. Adequate wetting of plant surfaces may be achieved by adding one drop of wetting agent to each 100ml of test solution.

(c) Starting with the control (water/wetter only) progress from low to high concentrations. Pour 150-ml of test solution into a 200-ml beaker and dip the bean sections using forceps for ca. 30s ensuring complete immersion.

(d) After immersion, place the dipped bean sections in a warm dry area on a raised mesh surface to dry. When dry, place the treated bean sections in labelled Medi cup vials, one per vial. Use a minimum of five replicates per treatment.

(g) Store the containers in an area where they are not exposed to direct sunlight or extremes of temperature. Record maximum and minimum temperatures. If possible incubate at 25°C and record IGR effects at regular intervals up to 7 days.

(i) Express results as percentage mortality and correct for untreated mortality using Abbott's formula. Untreated mortality and other relevant information should be recorded.

Percautions & Notes:

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 period of a few days and fresh test solutions prepared on a daily basis.

References & Acknowledgements:

None