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**Laboratory efficacy test methods and criteria of public health
insecticides for pesticide registration -- Part 10: Analogous site
(English Translation)**

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1 Scope

This Part of GB/T 13917 specifies the efficacy measurement methods and evaluation criteria for sanitary pesticides at analogous site.

This Part is applicable to the efficacy measurement and evaluation of sanitary pesticides against mosquitoes, flies, cockroaches, ants at analogous site, when registering pesticides.

2 Test materials

Use standard test insects of sensitive strains raised in the laboratory.

2.1 Mosquitoes

Culex pipiens pallens (northern region) or *Culex pipiens quinque fasciatus* (southern region), which are female adults that do not feed on blood on the 3rd to 5th day after emergence.

2.2 Flies

Musca elegans, which is an adult on the 3rd to 4th day after emergence, half male and half female.

2.3 Cockroach

Blattella germanica, which is a 10th to 15th day adult, half male and half female.

2.4 Ants

The small yellow house ant (*Monomorium pharaonis*), which is a worker ant that is more than 3 days old.

3.1 Analogous site

An approximately square room, which has a volume of 28 m³ and a height of not less than 2.5 m. At least two opposite walls shall be equipped with sealed glass windows, that allow observation of all corners.

3.2 Hanging cage

Cylindrical shape, diameter 150 mm, height 250 mm, surrounded by 12 mesh gauze.

3.3 Colorless transparent cylinder

Cylindrical shape, diameter 200 mm ~ 270 mm, height 140 mm ~ 170 mm.

3.4 White enamel bucket

Diameter 400 mm, height 400 mm.

4.1 Test conditions

Temperature, $(26 \pm 1) ^\circ\text{C}$;

Relative humidity, $65\% \pm 10\%$.

4.2.1 Mosquitoes and flies

At the analogous site (3.1), a total of 5 hanging cages (3.2) are placed at 1.5 m from the ground 0.5 m from the two adjacent walls, at 4 vertically intersecting points and the center. Release 20 test insects in each cage. After the test insect returns to normal activities, the tester wears protective clothing; stands in the center of the analogous site;

holds a hand sprayer or aerosol tank filled with spray liquid, to spray with the nozzle upward at about 45° , according to the test dosage in Table 1. The tester shall turn 360° when spraying. After applying the pesticide, the tester immediately leaves the site;

closes the doors and windows; starts timekeeping. After 1 h, collect the knocked down test insects into clean insect cages. Resume standard feeding. It should feed them with

5% sugar water cotton balls. The test insects that have not been knocked down will not be recovered and will be counted as the number of live insects in 24 hours. Check the number of dead test insects after 24 hours.

4.2.2 Cockroach

Use an analogous site (3.1) and a colorless transparent cylinder (3.3). Divide 60 cockroaches into 4 groups (15 in each group). Place them in a colorless transparent cylinder (3.3) with a ring of Vaseline tape on the inner wall of the cylinder mouth; place them at the four corners of the analogous site (3.1). After the test insect returns to normal after 24 hours.

4.4.2 Cockroach

Set up a cockroach hiding place in the analogous site (3.1). Release 100 cockroaches into the analogous site. After the test insects resume normal activities, place the recommended actual amount of bait for one room diagonally in two petri dishes. Place a petri dish containing cockroach feed diagonally in the other diagonal. A petri dish, which contains water-soaked cotton balls, shall be placed in parallel next to each petri dish. OR set the bait points according to the recommended method of bait. Close doors and windows. Starts timekeeping. Check and record the number of dead insects every day. Observe continuously until 12 days after feeding.

4.4.3 Ants

Use a white enamel bucket (3.4). Apply a 50 mm wide Vaseline strip to the inner wall of the bucket mouth. Place two 100 mm x 100 mm pieces of paper overlapping in the bucket. Put in 2 queen ants and 100 worker ants of small yellow house ants. At the same time, place ant bait and a petri dish filled with water-soaked cotton balls. Put the bait sample into the petri dish, after normal feeding for 24 hours. During the observation period, the enamel bucket shall be kept open. Check and record the number of dead insects every day. Continue the observation, until 12 days after feeding.

5 Recording

Record the theoretical and actual dosage of spray liquids, aerosols, smoke generator and smoke tablet, mosquito coils, vaporizing mat, liquid vaporizer, bait at analogous site for determination of efficacy, as well as the biological responses of the tested insects.

6 Calculation

The KT50 and virulence regression equations are calculated based on the repeated test data, using the linear weighted regression method. The 24 h (72 h for cockroach) mortality rate is calculated according to formula (1), with the results retained to 2 decimal places.

Where:

P - Mortality rate, %;

H - Represents the number of dead insects, in pcs;

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