

SOP for Determining Spray Quality in IRS Hut Application

Purpose: Determining the actual spray application rate (i.e. quality of spraying) at the start of the trial is essential to ensure that the correct dosage as stated in the study protocol has been applied in the experimental hut. The quantity of insecticide sprayed is determined using filter paper fixed on the wall before the spraying starts and subsequent HPLC testing for insecticide content.

Definitions

IRS Indoor residual spray
 HPLC High Performance Liquid Chromatography
 SOP Standard operating procedure

Scope

This document is applicable to all staff of the project that perform spraying of insecticides for IRS application in experimental huts.

Responsibilities

1. It is the responsibility of the Study Director and those making insecticide application in experimental hut studies to follow this SOP AVECNET EH 008.01.

Instructions

1. Equipment

- 1.1. Forceps
- 1.2. Aluminium Foil
- 1.3. 5cm x 5cm Squares of Whatman No. 1 Filter Paper
- 1.4. Pins (suitable for securing Filter Papers to Wall Surfaces)
- 1.5. Scissors, Pencil, Small plastic Bags (e.g. Ziplock/Freezer bags or equivalent)
- 1.6. Disposable gloves (Medical Examination/N-Dex or Equivalent)

2. **WHOPES Guidelines** (WHO/CDS/NTD/WHOPES/GCDPP/2006.3) state 'For IRS, to assess the accuracy of indoor spraying, at least four filter-papers 5 cm x 5 cm on different walls/heights are attached to the selected surface of each experimental hut before spraying, then removed once dry for chemical analysis'.

3. Preparation

For each individual hut:

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- 3.1. Put on a new pair of gloves
- 3.2. For each filter paper, label the back of the filter paper in pencil with the date, hut identifier (i.e. number), and the position on the wall (1/top left, 2/middle, 3/bottom right)
- 3.3. Fix the filter papers on the wall using pins. They must be placed on the wall opposite the door in the following position,
 - One in top left,
 - One in the middle,
 - One right bottom
- 3.4. A positive control paper with the required concentration of the insecticide will be made in the laboratory as a reference.

4. After spraying

- 4.1. Leave the filter papers on the wall for 24 hours to dry completely
- 4.2. For each hut, put on a new pair of gloves
- 4.3. Remove each sprayed filter paper using the forceps
- 4.4. Cut each filter paper in half. Fold each piece of filter paper in aluminium foil and place in a labelled plastic bag (location, date, hut number, position on the wall, insecticide)
- 4.5. Within one week of taking the samples, half of the samples are sent for analysis to an appropriate analytical laboratory
- 4.6. After analysis of each sample, results are combined for each substrate to provide the average target concentration of insecticide (expressed in mg/m^2)
- 4.7. The remaining samples will be retained and stored in a refrigerator at 4 ± 2 °C
- 4.8. If variation of the insecticide concentration on the wall is more than a predefined threshold (refer to study protocol) the trial in that hut will be abandoned, the hut refurbished and then re-sprayed.

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