

8. Monomolecular Films

8.1. Duration

Total duration of the trial is 2 months.

8.2. Objective

- To assess the effective dose and efficacy of MMF

8.3. Determination of the dose for treatment and its efficacy

The monomolecular films (MMF) of organic compounds can act as larvicide by reducing the surface tension of the aqueous surface and subsequently killing the immatures by interfering with spiracular opening at the water interface and preventing tracheal respiration. Because of this property this can be used for source reduction. In laboratory trials monomolecular film should be tested against all instars and pupae. Monomolecular films are effective only on clean water surface.

Different doses should be applied. Effective dose is one, which forms a monomolecular layer over the entire surface of water, which as determined in laboratory. Rectangular enamel trays (45 x 30 cm) or (90 x 60 cm) should be filled with known volume of water (2 to 5 litres) and MMF should be applied in 6 different doses in separate trays. The effective dose is the lowest dose that covers the entire surface of the water. This can be ascertained by putting rice husk or coloured powder supplied by the manufacturer as indicator for spreading.

To determine the efficacy of the selected dose, 100 laboratory colonised I/II instar larvae and III/IV instar larvae and pupae should be released in individual trays with parallel control. For each instar a minimum of 3 replicates should be set and mortality of larvae should be recorded. Assessment should be ascertained by counting number of larvae dead after 24, 48, 72 h and up to 2 weeks. Data should be recorded in the format given in Table 41.

Table 41. Observations on the MMF

| No. exposed | Mortality after 24 h | Pupal/Adult emergence | | | | |
|--------------|-------------------------|-----------------------|------|--------|--------|--------|
| | | 48 h | 72 h | 1 week | 2 week | 3 week |
| I/II Instar | | | | | | |
| III/IV Pupae | | | | | | |