de calcium et de magnésium de l'eau dure de référence par 5 fois 15 ml d'acétone, solvant de choix du DDT. Filtrer la solution acétonique sur filtre sans cendres dans une fiole jaugée de 100 ml. Compléter à 100 ml avec de l'acétone. Agiter.

Ces 100 ml de solution acétonique sont divisés en 2 parts de 50 ml.

Les 50 premiers ml servent de témoin pour le dosage des chlorures inorganiques éventuellement présents dans la solution acétonique. (Bien qu'en principe les chlorures inorganiques ne soient pas solubles dans l'acétone, on peut craindre qu'un faible pourcentage de chlorures soit entraîné ou dissous dans ce solvant).

Les autres 50 ml de solution acétonique sont soumis à une hydrolyse de 15 minutes, à 20-25°C, par une solution normale de potasse alcoolique, et les chlorures résultant de la déshalogénation de la molécule organochlorée de DDT sont titrés par argentométrie selon Charpentier-Volhard.

Reprenons l'exemple précédent:

Premier titrage argentométrique (50 ml de solution acétonique, sans hydrolyse)

NO_3Ag N/10 mis en jeu: 50 ml.

SCNK N/10 nécessaires au titrage: 49,9 ml.

Second titrage argentométrique (50 ml de solution acétonique, avec hydrolyse)

NO_3Ag N/10 mis en jeu: 50 ml.

SCNK N/10 nécessaires au titrage: 24,55 ml.

Le poids de DDT contenu dans le $^1/_{10}$ restant de la suspension, dépôt compris, est égal à:

$(49,9 - 24,55) \times 0,03546 \times 2 = 1,79$ g
d'où: $a = 1,79$

La quantité de matières en suspension %, après une demi-heure correspond à:

$MS\ (\%) = (6,25\text{-}a) \times 17,777 = (6,25\text{-}1,79) \times 17,777$
$MS\ (\%) = 79,28\ \%$.

Si l'on se réfère aux spécifications exigées pour les concentrés de poudre de DDT dispersables dans l'eau (Norme WHO/SIF/1. R1, p. 114) spécifications selon lesquelles MS doit être supérieur ou égal à 50%, nous pouvons conclure que l'aptitude à se mettre en suspension de la poudre mouillable testée est très satisfaisante.

A Technique for the Collection of Adult Mosquitos for Study *

by EDWARD I. COHER, Ph.D., *Entomologist, WHO Advisory Team on Malaria Eradication No. 3, WHO Regional Office for South-East Asia, New Delhi, India*

The need for a technique whereby large numbers of mosquitos could be quickly collected with a minimum of handling and in good condition was responsible for the development of a method used successfully in Afghanistan. It is believed that this technique will also lend itself to quantitative and qualitative studies of mosquito populations under the conditions specified herein.

The technique is applicable principally to structures which are tightly made, particularly mud-walled buildings, and also to caves. Therefore, its greatest use would seem to be in the Middle East and Africa, where this type of structure is common.

Briefly, the technique depends on smoking the mosquitos out of their resting places.

The structure from which the collection is to be made is darkened by blocking all cracks, windows and doors except the one where an exit trap is to be placed. It has been found that stuffing these openings with straw or hay is satisfactory. Over the door, inside and outside, several lengths of cloth are hung

* Since submission of this note for publication, my attention has been drawn by the World Health Organization to the fact that a similar technique was introduced by Sella in 1920 (Sella, M. (1920) *Int. J. publ. Hlth*, **1**, 324). Sella employed a small bomb consisting of an iron cylinder through which was passed a smaller cylinder to supply a draught and which was closed at the extremities with removable lids. The bomb was filled with a mixture consisting of sawdust, sodium nitrate, mineral oil and water, which was lighted by means of a fuse. This bomb, about 20 cm long and 8 cm in diameter, produced a large volume of smoke and could be rapidly used. While the technique described in the present note therefore represents in some degree the successful reintroduction of a largely forgotten method, it would seem unwise to adopt Sella's technique for gathering mosquitos which are to be used in sensitive susceptibility tests until the effects of the smoke-forming ingredients are determined by test.

Additionally, I am informed that a smoking technique has been widely used by Soviet entomologists.

to block out the light while allowing the investigators to enter freely. A trap with a funnel-like opening (slit types were found to allow mosquitos to escape) is mounted outside (either at a window or on a hole in the roof) with the opening facing the structure. A square trap with external dimensions of about 16 inches or 40 cm has been found to be most satisfactory. A single large nail above the cage and one below with a string from one to the other behind the trap is sufficient support. The opening between the cage and the outside wall is stuffed with hay, straw, or a length of cloth. If too much sun is beating on the cage, a light-coloured cloth may be laid on top of it.

Once the cage is in place, a smoke generator is lighted. This consists of a kerosene tin with a hinged top, compactly stuffed with straw or hay and with slits 1.5 cm wide cut in the sides. The tin should be placed at the furthest point from the single source of light, i.e., the window or hole fitted with the cage. As the structure fills with smoke, the mosquitos and other insects seek to escape and fly to the light. Generally within 15 to 20 minutes, a very high proportion of mosquitos is captured. Before removal of the cage, it should be ascertained whether any adults are resting in the opening leading to the cage. This precaution has proved less necessary with roof openings as the mosquitos then fly easily into the cage with its inverted funnel. A piece of cotton suffices to block the cage opening during removal.

A wooden frame has proved to be satisfactory for a trap of the type used in this study. The covering material should be a wide-meshed net that will not impede the flow of smoke or the passage of light. The funnel should be eccentric, so that its opening will be near the top of the cage. In the rear and sides of the cage, holes are cut and edged with adhesive tape and blocked with cotton during collection. These holes are to allow the entrance of a sucking tube to transfer the mosquitos. A sleeve may be made if so desired.

It is a simple matter to separate the mosquitos according to (*a*) species, (*b*) whether they are engorged, gravid, with a partly digested blood meal, or unfed, or (*c*) sex.

The principal uses of this method are:

1. To collect large numbers of living mosquitos in a short time for use in various tests.

2. To make absolute population studies of structures. This requires further investigation by us as well as by other persons interested in the method.

3. To remove temporarily any part or all of a population of mosquitos in a village, or part of it, and subsequently to determine what the movement of a new population or the captured and released population might be.

In practice, this method has proved invaluable in Afghanistan. Adult *A. superpictus* showed a survival rate of over 90% (75 female adults) over a period of nine days and 100% survival on the second day after being used in a susceptibility test. It therefore seems that exposure to smoke of the type used (i.e., from hay and straw) has little or no effect on the survival of at least this species. Other species have also been collected in small numbers but these were not kept alive to check longevity.

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