Plate 3

Kato-Katz Technique – cellophane faecal thick smear

Materials and reagents

1. Applicator sticks, wooden.
2. Screen, stainless steel, nylon or plastic: 60-105 mesh (Fig.1).
3. Template, stainless steel, plastic, or cardboard (Fig.1). Templates of different sizes have been produced in different countries. A 50 mg template will have a hole of 9 mm on a 1 mm thick template; a 41.7 mg a hole of 6 mm on a 1.5 mm thick template; a 20 mg a hole of 6,5 mm on a 0.5 mm thick template. The templates should be standardized in the country and the same size of templates should be used to ensure repeatability and comparability of prevalence and intensity data.
4. Spatula, plastic (Fig.1).
5. Microscope slides (75x25 mm).
6. Hydrophillic cellophane, 40-50 µm thick, strips 25x30 or 25x35 mm in size (Fig. 2).
7. Flat bottom jar with lid (Fig. 2).
8. Forceps.
9. Toilet paper or absorbent tissue.
10. Newspaper.
11. Glycerol-malachite green or glycerol-methylene blue solution (1 ml of 3% aqueous malachite green or 3% methylene blue is added to 100 ml glycerol and 100 ml distilled water; this solution is mixed well and poured onto the cellophane strips and soaked in this solution in a jar for at least 24 hr prior to use.).

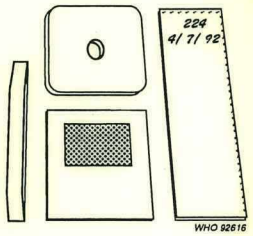

Fig. 1

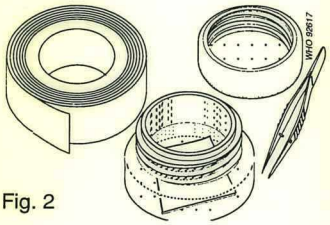

Fig. 2

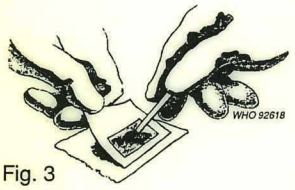

Fig. 3

Procedure

1. Place a small mound of faecal material on newspaper or scrap paper and press the small screen on top of the faecal material so that some of the faeces will be sieved through the screen and accumulate on top of the screen (Fig. 3).
2. Scrape the flat-sided spatula across the upper surface of the screen so that the sieved faeces accumulate on the spatula (Fig. 4).
3. Place template with hole on the centre of a microscope slide and add faeces from the spatula so that the hole is completely filled. (Fig. 5). Using the side of the spatula pass over the template to remove excess faeces from the edge of the hole (the spatula and screen may be discarded or if carefully washed may be reused again).
4. Remove the template carefully from the slide so that the cylinder of faeces is left completely on the slide.
5. Cover the faecal material with the pre-soaked cellophane strip (Fig. 6). The strip must be very wet if the faeces are dry and less so with soft faeces (if excess glycerol solution is present on upper surface of cellophane wipe the excess with toilet paper). In dry climates excess glycerol will retard but not prevent drying.
6. Invert the microscope slide and firmly press the faecal sample against the hydrophillic cellophane strip on another microscope slide or on a smooth hard surface such as a piece of tile or a flat stone. With this pressure the faecal material will be spread evenly between the microscope slide and the cellophane strip (Fig. 7). Newspaper print can be read through the smear after clarification (Fig. 8).
7. Carefully remove slide by gently sliding it sideways to avoid separating the cellophane strip or lifting it off. Place the slide on the bench with the cellophane upwards. Water evaporates while glycerol clears the faeces.
8. For all except hookworm eggs, keep slide for one or more hours at ambient temperature to clear the faecal material prior to examination under the microscope. To significantly expedite clearing and examination, the slide can be placed in a 40°C incubator or kept in direct sunlight for several minutes.
9. *Ascaris* and *Trichuris* eggs will remain visible and recognizable for many months in these preparations. Hookworms eggs clear rapidly and if slides are not examined within 30-60 minutes the eggs no longer will be visible. Schistosome eggs may be recognizable for up to several months but it is preferable in a schistosomiasis endemic area to examine the slide preparations within 24 hours.
10. The smear should be examined in a systematic manner (see: Plate 1, Fig. 4) and the number of eggs of each species reported. Later multiply by the appropriate number to give the number of eggs per gram of faeces (if using a 50 mg template by 20; a 20 mg template by 50; a 41.7 mg template by 24). With high egg counts, to maintain a rigorous approach reducing reading time, the Stoll quantitative dilution technique with 0.1 N NaOH may be recommended.

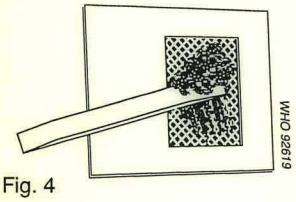

Fig. 4

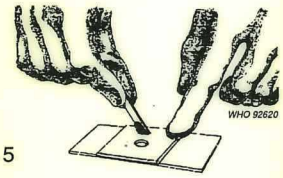

Fig. 5

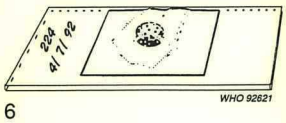

Fig. 6

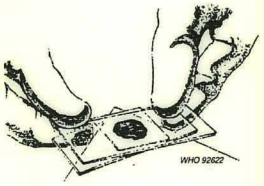

Fig. 7


PHNOM PENH

LES KHMERS ROUGES REVIENNENT

L'ARSENAL CHIMIQUE VA ÊTRE DÉTRUIT

WHO 92623
Fig. 8

Requests should be addressed to:
Programme on Intestinal Parasitic Infections, Division of Communicable Diseases, World Health Organization, Avenue Appia 20, 1211 Geneva 27, Switzerland.