

Fecal smear kit designed for efficient means of diagnosing intestinal Schistosomiasis and Soil-Transmitted Helmenthiasis (STH)

Principle¹

People infected with STH or intestinal Schistosomiasis pass the worms' eggs through their feces. By microscopically examining prepared stool samples, it is possible to enumerate and identify the eggs that are present.

Contents of Kit

- Applicator sticks (500 pieces)
- Nylon screen, 100 mesh (500 pieces)
- Template, calibrated to 41.7 mg (500 pieces)
- Hydrophilic cellophane (500 pieces)

Required Additional Items for Preparing Slides

- Microscope slides (500 pieces)
- Flat-bottomed jar
- Forceps
- Absorbent tissue
- Scrap paper or newspaper
- Glycerol/dye solution (100 mL water, 100 mL glycerol, and 1 mL of 3% aqueous malachite green or methylene blue)
- Examination gloves (recommended while handling fecal samples)

How to Peel Cellophane from Low Tack Roll



Instructions for Use²

1. Soak the cellophane strips in the 50% glycerol-malachite green (or methylene blue) solution for at least 24 hours before use.
2. Transfer a small amount of feces onto a piece of scrap paper (such as newspaper).
3. Press a new, previously unused, nylon screen on top of the fecal sample.
4. Using a new, previously unused, flat-sided applicator stick, scrape across the upper surface of the screen to sieve the fecal sample.
5. Place a new, previously unused, template on a clean microscope slide.
6. Using the applicator stick, transfer a small amount of sieved fecal material into the template and carefully fill the hole completely. Then use the applicator stick to scrape the fecal material level with the surface of the template, removing any excess material.
7. Carefully remove the template so that all the fecal material remains on the slide and none is left sticking to the template.
8. Cover the fecal sample on the slide with a glycerol/dye-solution-soaked cellophane strip.
9. If an excess of solution is present on the upper surface of the cellophane, gently wipe it off with a small piece of absorbent tissue.
10. Invert the microscope slide and press the fecal sample against the cellophane on a smooth, hard surface to spread the sample evenly.
11. Do not lift the slide straight up as the cellophane may separate. Supporting the cellophane, gently move the microscope slide sideways while lifting.
12. Preparation of the slide is now complete. To prevent cross-contamination of samples, do not reuse screens, applicator sticks, or templates to prepare additional slides.

Reading of Prepared Slides²

Proper reading of the prepared slides can be challenging. Hookworm eggs (*Ancylostoma* and *Necator*) only remain visible for up to 30 minutes after slide preparation. If hookworm detection is desired, then the slides must be read within 30 minutes.

Other STH eggs (*Ascaris* and *Trichuris*) and intestinal *Schistosoma* eggs remain reliably visible; and, when stored at ambient temperature, WHO recommends that the prepared slides be kept for at least 24 hours before microscopic evaluation to allow for sample clearing.

However, sample clearing can be significantly accelerated by placing the prepared slides in an incubator at 40°C, or by exposing the prepared slides to intense light (incandescent, fluorescent or bright sunlight).

Using these treatments, it may be possible to achieve sample clearing within a few minutes and then proceed with reading the slides.



References

- [1]** World Health Organization. (2008, February). Field Tools—Measuring the Severity of Disease. *Action Against Worms*. Retrieved from https://www.who.int/neglected_diseases/preventive_chemotherapy/pctnewsletter/en/
- [2]** World Health Organization. (1991). Cellophane faecal thick-smear for diagnosis of intestinal schistosomiasis (Kato-Katz technique). *Basic laboratory methods in medical parasitology* (pp.25-28). Geneva: World Health Organization. Retrieved from <https://apps.who.int/iris/handle/10665/40793>
- [3]** World Health Organization. (2019, March 14). Soil-transmitted helminth infections. Retrieved from: <https://www.who.int/news-room/fact-sheets/detail/soil-transmitted-helminth-infections>