

## A METHOD FOR COUNTING SCHISTOSOME EGGS IN FECES

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### S U M M A R Y

A sedimentation method for counting eggs of *Schistosoma mansoni* as well as eggs of other intestinal helminths, is described. The method is considered to be economic, simple and suitable to be used in any small laboratory and it has been widely employed in field work in Brazil.

### I N T R O D U C T I O N

The study of several aspects of schistosomiasis has been handicapped by the lack of a simple suitable method for counting eggs in feces of man and animals.

The method described herein appears to fulfill the requisites of an economic, simple and suitable method to be used in any small laboratory, and it has been widely employed in field work in this country. It is useful for counting the eggs of other intestinal helminths as well.

This method has been in use for nearly four years in several laboratories throughout Brazil. Although never published the method has been quoted by some Authors and even evaluated. It has also been confused with another method appearing in 1965 (BARBOSA<sup>1</sup>) as recently did KATZ & CHAIA<sup>3</sup> and CHAIA et al.<sup>2</sup>.

Since its adoption the method has been modified in certain details and it is possible that variants of the unpublished BARBOSA's method be in use in different laboratories.

For those reasons and to avoid misinterpretations the method is now presented in definitive form.

### M A T E R I A L S

- 1) Glass or plastic vessels for feces collection, capacity 60 ml.

- 2) Marker for glass or plastic to show the weight of the vessel.
- 3) Scale for weighing fecal samples.
- 4) Vessels (ordinary drinking glasses) for emulsification of the fecal samples.
- 5) Glass or metal rods.
- 6) Tubular glasses, 50 ml capacity, graduated at 1 ml.
- 7) Metallic screens, stainless, 45 threads per inch, adaptable to glass or plastic funnels.
- 8) Glass or plastic funnels, 55 ml upper diameter, to hold the metallic screens.
- 9) Aspirator to remove supernatant fluid.
- 10) Pipettes, 1 ml graduated in 0.1 ml.
- 11) Slides and cover slides (32 × 24).
- 12) Low power microscope.

### T E C H N I Q U E

- 1) Feces are collected in glass or plastic vessels of known weight which has been previously marked on the glass.
- 2) A weighing scale is set to mark exactly 5 g above the weight marked on the collecting vessel. The vessel is then placed on the scale and feces are withdrawn until the scale equilibrates.

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3) The weighted (5 g) feces are triturated in the same collecting vessel with about 25 ml of distilled water, and is then poured into an ordinary drinking glass. Trituration is continued by pouring water into the collecting vessel and passing the liquid to the drinking glass. After a thorough trituration, the liquid is passed through the screen into the graduated cylinder. The total volume is then raised to 50 ml, with distilled water.

4) The liquid in the cylinder is allowed to sediment for one hour, after which the supernatant fluid is aspirated.

5) The quantity of sediment is recorded, and is then thoroughly mixed. From this, a 0.1 ml samples is drawn for examination.

6) The schistosome and other helminth eggs are counted on a standard slide under a cover glass, and the number of eggs is recorded.

To calculate the number of eggs, the following formula should be used:

$$X = \frac{\text{n.º eggs per slide} \times \text{ml of sediment}}{0.1}$$

X = number of eggs in the total amount of feces (5 g).

To obtain the number of eggs per gram of feces, this value should be divided by 5.

An important argument could be raised against the statistical value of this method since variable volumes of sediment may influence the reliability of the results. It should be stressed here that this is true only when one wishes to compare results among individuals, or to compare several examinations made for the same person.

To obviate the above difficulty, the sediment should never be raised to any standard mark, for such a dilution may decrease the chances of finding the eggs. Instead, a standard percentual samples of the sediment may be drawn. Since most of the sediments varie between 3 and 5 ml it may be assumed that 4 ml is the average sediment volume. A samples of 0.1 from such a sediment then amounts to 2.5 per cent. This same percentual samples should be used for all the tests when comparable results are needed.

In epidemiological surveys comparisons are frequently made among groups of individuals to establish correlations between the average number of eggs and certain attributes of the population (age groups, socio-economic standards, severity of the diseases, etc.). For such purposes, this method is statistically valid since variation occurring in the sediments do not interfere with countings when the population samples are large enough to give reliable results.

#### RESUMO

#### *Método para contagem de ovos de Schistosoma nas fezes*

Um método para contagem de ovos de *Schistosoma mansoni* e outros helmintos intestinais é descrito. O método, considerado bastante econômico, simples e conveniente para ser usado em qualquer pequeno laboratório, tem sido largamente utilizado em trabalhos de campo neste país.

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