

PREPARATION OF BLOOD SPOTS ON FILTER PAPER

MALARIA MICROSCOPY STANDARD OPERATING PROCEDURE – MM-SOP-10

1. PURPOSE AND SCOPE

To describe the procedure for preparing dried blood spots on filter paper suitable for DNA analysis.

This procedure is to be modified only with the approval of the national coordinator for quality assurance of malaria microscopy. All procedures specified herein are mandatory for all malaria microscopists working in national reference laboratories, in hospital laboratories or in basic health laboratories in health facilities performing malaria microscopy.

2. BACKGROUND

Nucleic acid testing with the polymerase chain reaction (PCR) is more sensitive for malaria diagnosis than microscopy, particularly for mixed infections and low parasitaemia. Some samples in the laboratory might have to be analysed by PCR to confirm species and mixed infections.

Blood spots collected on filter paper can also be used for parasite strain genotyping to distinguish infections due to local transmission from imported cases in settings of malaria elimination.

3. SUPPLIES, MATERIALS AND EQUIPMENT

- filter paper (Whatman "fast transient analysis" (FTA), Whatman 2 or 3 or Whatman 903) to allow both genotyping and serological analysis;
- a micropipette, volume capacity 20–200 µL, and fitted disposable tips;
- ziplock plastic bags, one for each patient;
- desiccant without cobalt chloride (those left-over from recently opened rapid diagnostic test pouches can be used, but there must be no colour change; otherwise, purchase desiccant commercially);
- fresh whole blood or blood with anticoagulant (EDTA, sodium citrate, citrate dextrose or heparin);
- a refrigerator at 4 °C (for samples to be examined within 4 weeks);
- a freezer at -20 °C (for samples to be examined within 3 months) and
- a deep-freezer at -80 °C (for samples to be examined in > 1 year).

4. PROCEDURE



Fig. 1. Dried blood spots on Whatmn FTA card filter paper



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Fig. 2. Dried blood spots on Whatman 2 or 3 filter paper cut into a piece measuring 2.54 x 6.35 cm and stapled or attached to a 2.54 x 6.35 cm piece of stiff paper



Filter paper, with two or three blood spots (inside view)



Stiff paper (front view, serves as cover and label for the filter paper with blood)

Fig. 3. Dried blood spots on Whatman 903 filter paper



5. PROCEDURE NOTES

- Wear gloves to prevent contamination of filter paper.
- Universal precautions, including relevant personal protective equipment such as laboratory coats or gowns, must be used.
- Store samples in a refrigerator at 4 °C when examination (e.g. genotyping and serology) is not to be performed immediately after collection of the sample but within a 4-week period.
- Store samples in a freezer at -20 °C when they are to be examined within 3 months.
- Store samples in a deep freezer at -80 °C when they are to be examined after a longer period, e.g. >1 year.

6. RELATED SOPs

MM-SOP-6a: Labelling malaria blood films

7. REFERENCE

预览已结束,完整报告链接和二维码如下:



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