Tikrit University

College of Nursing

Basic Nursing Sciences

Second Year - 2023-2024

Microbiology

Parasitology

Concentration procedures

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Concentration procedures

A routine part of complete stool examination for parasites Allows detection of small numbers of parasites that may be missed by using only a direct wet smear Designed to separate protozoan organisms & helminths eggs & larvae from fecal debris by centrifugation and/or differences in specific gravity.

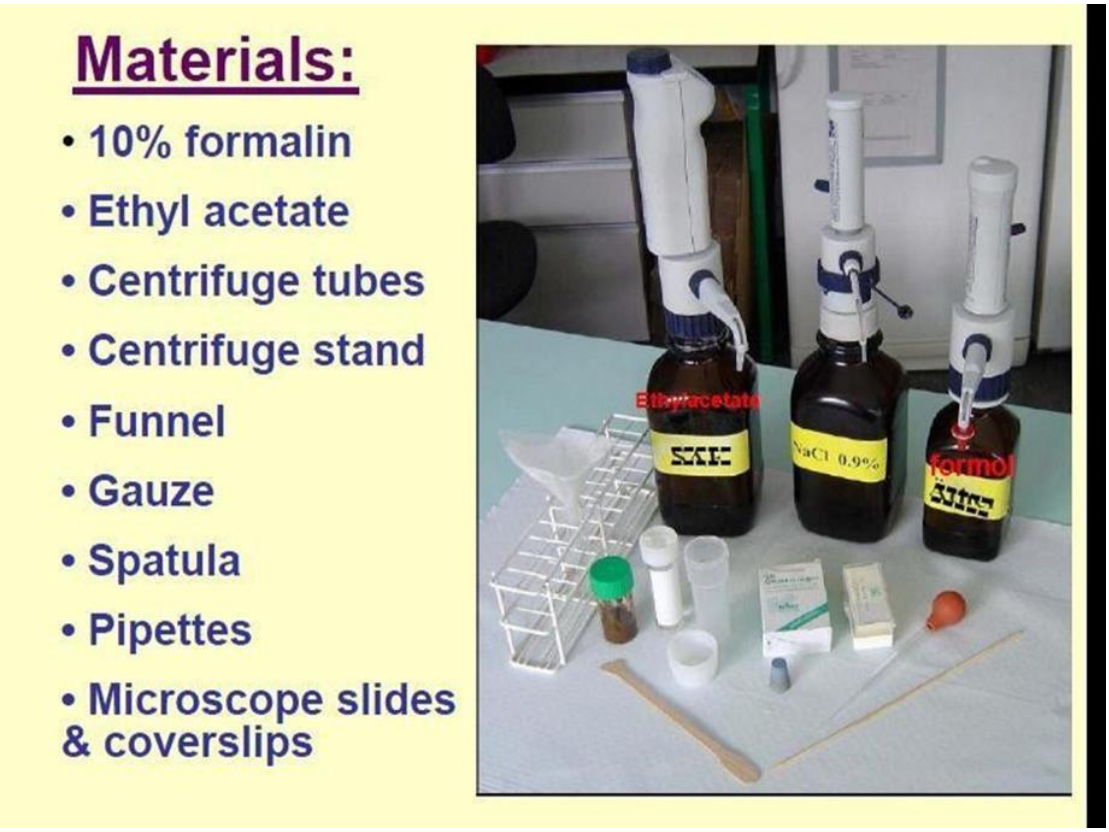
There are two types of concentration procedures:

1- Sedimentation

Concentration procedures are used to concentrate eggs, larvae and protozoan cysts to increase the sensitivity for parasite detection in stool samples, specially in cases of mild infection.

All type of eggs and cysts can be recovered by sedimentation. Parasites settle down more rapidly by centrifugation.

Larger food particles can be removed prior to centrifugation by filtering through a sieve with a pore size enough to retain those particles. The efficiency of detection is increased by adding formalin for fixation & preservation of parasites, and ethyl acetate to remove organic material especially fat.



Method:

Step 1:

Emulsify 0.5-1 g of stool in 7 ml of 10% formalin in a tube.

Step 2:

Pour the stool emulsion onto a double layer of gauze in a funnel and collect in a beaker

Step 3:

Wash the stool through the gauze using formalin. This washes the parasites through but filters out the larger pieces of debris.

Step 4:

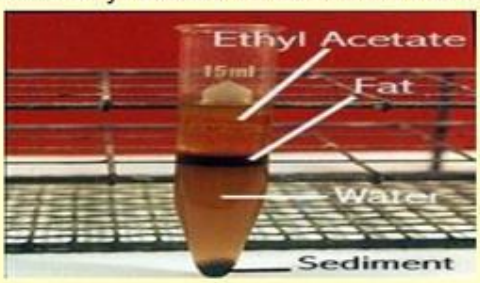
Pour the filtrate into a 15 ml centrifuge tube and add 3 ml of ethyl acetate, mix well (~1 min) by hand.

Step 5:

Centrifuge the mixture for 5 minutes at 500 g (~2000rpm).

Four layers are formed in the tube after centrifugation

(Formol-ethyl acetate concentration method)



Step 7:

Mix the sediment well

Step 6:

Loosen the fatty plug at the top of the tube with an applicator stick and invert the tube to discard the supernatant.

* Few drops should be kept with the sediment.

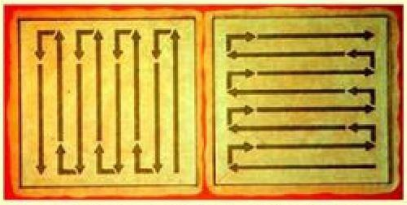
Step 9:

Place one edge of the coverslip on the drop and carefully pull the drop along. When the coverslip is in position gently let it drop.

Step 8:

Place a drop on the slide.

Step 11:



- Scan the entire coverslip systematically as illustrated using the 10X objective.
- If you suspect cysts or trophozoites, use higher magnification.
- 1/3 of the slide should be scanned using a higher magnification.

Step 10:

If there is a thick and thin area, the cysts and ova will generally be found in the thick portion of the mount.