



NATIONAL UNIVERSITY (SUDAN)

Faculty of Medical Laboratory Sciences

Student Practical Manual

Parasitology and Medical Entomology Department

Second year, Semester (4)

Protozoology(MLS-PROT-225)

Student Name:

ID: **Batch:**

INSTRUCTIONS

- *Wear lab coat*
- *Wear Gloves*
- *Avoid swallow any chemical*
- *Follow the procedures provided*
- *Write your results in this manual*

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Practical No [1]

Lab. diagnosis of *Entamoeba histolytica* & *Entamoeba coli*

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Entamoeba histolytica* & *Entamoeba coli*
- perform laboratory diagnostic methods of this parasites.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Stool sample collected from infected persons for teaching purpose.

Procedure:

Specimens will be subjected to direct saline preparation by:

1. Suspending 5-10 mg (match-head size) in few drops of 0.9% Sodium Chloride solution
2. Then add 1-2 drops of 1% eosin solution to the suspension.
3. If the consistency of the stool specimen was fluid, otherwise lugol's iodine should be added.

4. Then cover with cover slip and examine under the microscope using 10x eye piece and 10x objective for screening, and then 40x objective for identification.

The morphological feature of the cyst stage:

Shape/.....Color/.....Size/.....to.....

Content/

The morphological feature of the trophozoite stage:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

.....

Interpretation:

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Evaluation:...../10

Name and signature of the instructor:

Date: / / 2018

Practical No [2]

Lab. diagnosis of Naegleria fowleri & Acanthamoeba spp.

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Naegleria fowleri* & *Acanthamoeba spp*
- perform laboratory diagnostic methods of this parasites.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Stool sample collected from infected persons for teaching purpose.

Procedure:

Specimens will be subjected to direct saline preparation as mentioned above:

The morphological feature of the cyst stage:

Shape/.....Color/.....Size/.....to.....

Content/

The morphological feature of the trophozoite stage:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

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Interpretation:

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Draw and label the trophozoite stage:



Evaluation:.....

Name and signature of the instructor:

Date: / / 2018

Practical No [3]

Lab. diagnosis of Giardia lamblia

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Giardia lamblia*.
- perform laboratory diagnostic methods of *Giardia lamblia*.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Stool or sputum samples.

Procedure:

Specimens will be subjected to direct saline preparation as mentioned above:

The morphological feature of the cyst stage:

Shape/.....Color/.....Size/.....to.....

Content/

The morphological feature of the trophozoite stage:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

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Interpretation:

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Draw and label the trophozoite stage:



Evaluation:.....

Name and signature of the instructor:

Date: / / 2018

Practical No [4]

Lab. diagnosis of *Trichmons vaginalis*

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Trichmons vaginalis*.
- perform laboratory diagnostic methods of *Trichmons vaginalis*.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Urine samples.

Procedures:

Specimens will be subjected to sedimentation technique by:

1. Centrifugation of 10-15ml of urine.
2. Discard the supernatant fluid.
3. Dispense the sediment on microscope slide.
4. Then cover with cover slip and examine under the microscope using 10x eye piece and 10x objective for screening, and then 40x objective for identification.

The morphological feature of the trophozoite:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

.....

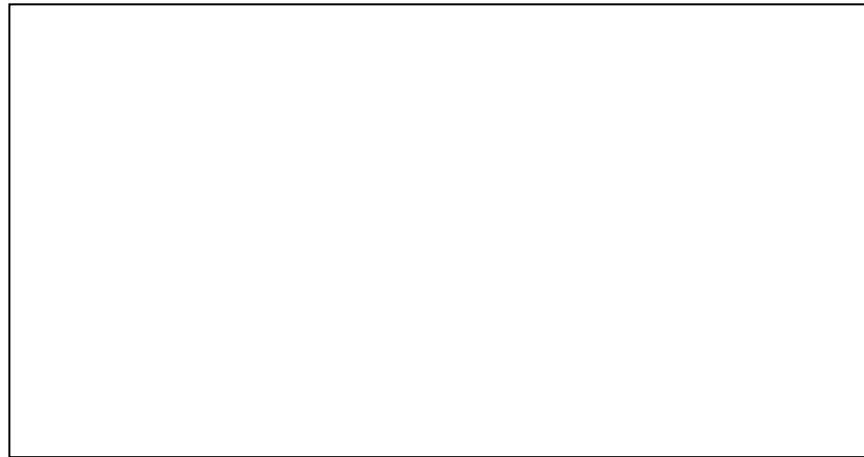
Interpretation:

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Draw and label the trophozoite stage:



Evaluation:.....

Name and signature of the instructor:

Date: / / 2018

Practical No [5]

Lab. diagnosis of Cryptosporidium parvum

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Cryptosporidium parvum*.
- perform laboratory diagnostic methods of *Cryptosporidium parvum*.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Stool samples.

Procedure:

Specimens will be subjected to direct saline preparation as mentioned above:

The morphological feature of the Oocyst:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

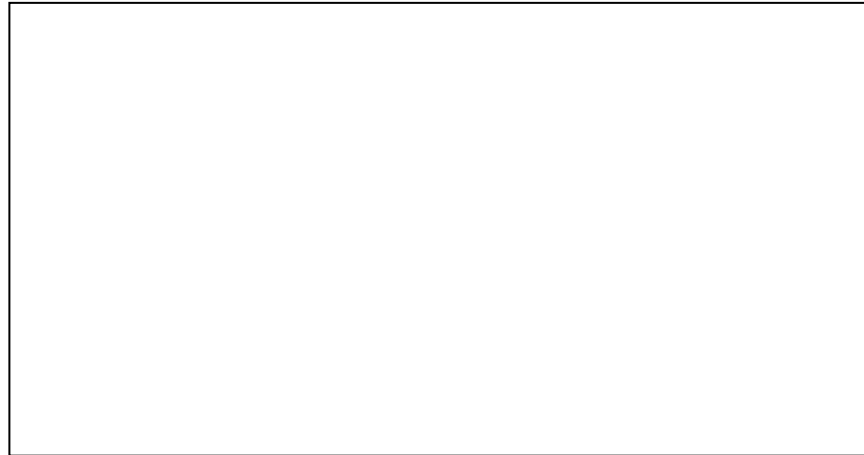
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Interpretation:.....

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Draw and label the Oocyst stage:



Evaluation:

Name and signature of the instructor:

Date: / / 2018

Practical No [6]

Lab. diagnosis of Isospora belli

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Isospora belli*.
- perform laboratory diagnostic methods of *Isospora belli*.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Stool samples.

Procedure:

Specimens subjected to direct saline preparation as mentioned above:

The morphological feature of the Oocyst:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

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Interpretation:

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Draw and label the Oocyst stage:



Evaluation:.....

Name and signature of the instructor:

Date: / / 2018

Practical No [7]

Lab. diagnosis of *Toxoplasma gondii*

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Toxoplasma gondii*.
- perform laboratory diagnostic methods of *Toxoplasma gondii*.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Body fluids ore tissue samples samples.

Procedure:

Specimens direct wet preparation or stained smears.

The morphological feature of the tachizoite stage:

Shape/.....Color/.....Size/.....to.....

The morphological feature of the bradizoite stage:

Shape/.....Color/.....Size/.....to.....

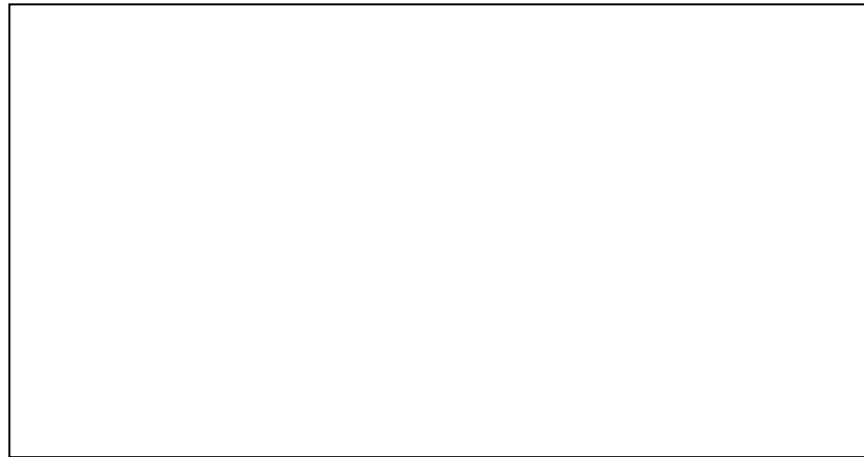
The Result:

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Interpretation:

.....
.....

Draw and label the tachizoite stage:



Evaluation:

Name and signature of the instructor:

Date: / / 2018

Practical No [8]

Lab. diagnosis of leishmania parasite

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *leishmania* parasites.
- perform laboratory diagnostic methods of *leishmania* parasites.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Skin or liver, spleen, lymph node and bone marrow samples.

Procedure:

Specimens will be subjected to direct saline preparation as mentioned above:

The morphological feature of the amastigote stage:

Shape/.....Color/.....Size/.....to.....

Content/

The morphological feature of the promastigote stage:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

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Interpretation:

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Draw and label the promastigote stage:



Evaluation:

Name and signature of the instructor:

Date: / / 2018

Practical No [9]

Lab. diagnosis of Trypanosoma parasite

Objectives:

By the end of this practical you should be able to:

- discuss morphology of *Trypanosoma* parasites.
- perform laboratory diagnostic methods of *Trypanosoma* parasites.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Blood samples.

Procedure:

Specimens direct wet blood film preparation or stained blood films.

The morphological feature of trypomastigote:

Shape/.....Color/.....Size/.....to.....

Content/

The Result:

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Interpretation:

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.....

Draw and label the trypomastigote stage:



Evaluation:

Name and signature of the instructor:

Date: / / 2018

Practical No [10]

Lab. diagnosis of malaria parasite

Objectives:

By the end of this practical you should be able to:

- discuss morphology *malaria* parasites.
- perform laboratory diagnostic methods of *malaria* parasites.

Principle:

Detection and identification of parasitic elements is performed by the magnification by using the light microscope.

Requirement:

Microscope, Slides, cover glass, wooden stick, 10% formalin, iodine, normal saline, ethanol.

Sample and sampling:

Blood samples.

Procedure:

Specimens stained blood films preparation and examination.

The morphological feature of the trophozoite, schizont and gametocyte of *P. falciparum*:

Trophozoite/.....

.....

Schizont/.....

.....

Gametocyte/.....

.....

.....

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The Result:

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Interpretation:

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Draw and label in the followings:

Parasite Stage	<i>P.falciparum</i>	<i>P.malariae</i>	<i>P.vivax</i>	<i>P.ovale</i>
<i>Trophozoite</i>				
<i>Schizont</i>				
<i>Gametocyte</i>				

Evaluation:

Name and signature of the instructor:

Date: / / 2018