Manual RBC/RBC Indices/HCT LABS

Lab 6
Purpose:
The purpose of this lab is to learn how to perform and interpret a manual RBC count and RBC indices.
Materials:

1. Plastic container w/ lid
2. 20 mL of 0.9 NaCl (saline)
3. Plastic pipette
4. Microscope
5. EDTA whole blood
6. Lab counter
7. ¼ paper towel
Materials Cont:

8. 0.1 mL (100uL) pipette w/ tips
9. Test tube rack
10. Hemacytometer
11. Work mat (paper towel)
12. Lab coat
13. Disinfecting wipes
14. Biohazard containers
Procedure:

1. Make a 1:200 Dilution using EDTA whole blood and saline.
Step 1 cont:

(To make a 1:200 dilution of EDTA whole blood, put 20 mL of saline in plastic container. Add 100uL of whole blood using a fixed pipette and pipette tips. Mix gently by inversion. Dilution is stable for 6 hours.)
Step 2

2. Using a plastic pipette, charge the hemacytometer the same way you did in Lab 11.
3. Count square indicated for RBC count using Hemacytometer (see picture).
Step 4

4. Multiply value by 10,000 and record data.
Step 5

5. Replace and dispose of all supplies and equipment according to instructor (also see lab disposal book).
Step 6

6. Disinfect work area, chair, test tube rack, and any other item that may be contaminated with body tissues.
Raw Data/Calculations:

Count the center square of the nine (9) large squares on the hemacytometer

Square a _______
Square b _______
Square c _______
Square d _______
Square e _______
Total _____ X 10,000 = _______

Show RBC Indices calculations here:
(When calculating the indices using your RBC count, only use the number value).
EX: If RBC count it $4.5 \times 10^6 \text{ mm}^3$, use only 4.5 in your calculations (see lab manual and text book).
Results:

Remember to include units!

**RBC count** = _____

**MCV** = _____ (see previous lab)

**MCH** = _____

**MCHC** = _____ (see previous lab)

**Hct** = _____

**Hb** = _____
Normal Range:

State the normal RBC count and RBC indices for men and women.

**RBC count** = __________

**MCV** = __________

**MCH** = __________

**MCHC** = __________
Conclusions:

Write a sentence stating if your results were normal or abnormal. If abnormal, state the likely disease and/or condition associated with your findings.
Clinical Significance:
List the disease and/or conditions associated with the RBC count and RBC indices.

RBC count __________
MCV __________
MCH __________
MCHC __________
Questions:

1. What is the purpose of the diluent for the **RBC** count?

2. What is the most common diluent used for **RBC** count?

3. What is the Red Cell Distribution Width (RDW)?
Micro hematocrit (Hct) and Hemoglobin (Hb) Lab {#6}

- **Purpose:** The purpose of this lab is to perform and interpret a Hct and Hb count to see if there is any sign of low oxygen, anemia, or cyanosis.
Materials:
Capillary Tubes
Microhematocrit Centrifuge
Micro-Capillary Reader

INSTRUCTIONS

1. Place the conical-shaped capillary tube in the groove of the plastic indicator so that the bottom of the column of red cells coincides with the black line on the plastic indicator.

2. Rotate the bottom plate so that the 100 per cent line is directly beneath the red line on the plastic indicator, then hold the bottom plate in this position. Now, using the finger hole, rotate the top plate so that the spiral line intersects the capillary tube at the plasma-air interface.

3. Rotate both discs together until the spiral line intersects the capillary tube at the red cell-white cell interface.

4. Red cell volume in per cent is read from the point on the scale directly beneath the red line on the plastic indicator.

I.E.C. CAT No. 2201
EDTA whole blood or Fingerstick Blood
Critoseal
Biohazard Containers
Working Mat/Paper towel
Test Tube Rack
Laboratory Coat (must be buttoned up all the way)
Latex Gloves
Disinfecting Wipes

[Image of a container of Clorox Disinfecting Wipes]
1. Quick-Wash Hands
2. Assemble Equipment
3. Inoculate Blood
4. Place two capillary tubes into the EDTA whole blood. (One at a time).
5. Put both capillary tubes in the Critoseal
6. Place tubes in microhematocrit centrifuge with critoseal ends securely against the outer end of centrifuge.
7. Fasten inner/outer lid securely and lock.
8. After spinning, bring the capillary tubes to the Micro-Capillary Reader and follow the instructions on the reader.
9. Dispose of work mat in biohazard bag
How to Perform
A Blood Smear
Two Applicator Sticks
Two Microscope slides
Whole EDTA Blood
Working mat/Paper towel
Test Tube Rack
Biohazard Containers
1. Write name in pencil on the slide you’re smearing
2. Stir blood a little with both applicator sticks to get the blood on them
3. Take sticks out and put a dot of blood on the slide with your name on it.
4. Put an edge of the other slide on the blood to get it spread from edge to edge of the smear slide.
5. Slide the applicator slide across the smear slide swiftly and evenly
6. Dispose of applicator slide and applicator sticks in the biohazard container.
7. Let smear dry and store in slide protector
8. Dispose of work mat in Biohazard bag
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