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Tuesday Lab

Laboratory 12-Hematology

Purpose- Hematology is the study of blood which comprises a series of diagnostic procedures that allow health aspects of an individual to be determined. The important blood parameters that are normally determined are blood type and capacity for oxygen transport. Specific blood types are based on the presence or absence of agglutinogens on red blood cell membranes. Capacity for oxygen transport is done by measuring the hematocrit (packed cell volume) and hemoglobin content of blood. The purpose of laboratory 12 was to determine the ABO and Rh blood type of simulated blood and determine the hematocrit and hemoglobin content of your own blood.

Procedures- In experiment 12A the first step in the procedure was to get a tray that was labeled "A", "B", and "Rh". We then gathered the "blood samples" of the crime scene, the victim, and suspect numbers 1-4 and added 3 drops of the first sample (the crime scene) into the A, B, and Rh spots on the tray. We then added 3 drops of the simulated anti-A serum into the A spot of the tray, added 3 drops of simulated anti-B serum into the B spot of the tray, and added 3 drops of simulated anti-Rh serum into the Rh spot of the tray. After adding the drops to the correct spots, we got a toothpick and stirred each sample of blood serum and then recorded our observations. We then washed out the tray, dried it and repeated the same procedure for the victim, and suspect numbers 1-4. For experiment 12B we were to prick our finger to gather a sample of our own blood and fill up a red-tipped heparinized capillary tube about 2/3's of the way. We were to then seal the end of the tube opposite the side of the blood with crit-o-seal. We all then placed our sealed tubes into an Autocrit II centrifuge with the sealed end directed outward and spun them around for 3 minutes. After the centrifuge stopped we all grabbed our sample and measured the height of RBCs and the total height of the blood sample in millimeters. We then calculated the hematocrit value by dividing the PCV by the total blood volume and multiplied it by 100 to get our percentage in hematocrit levels.

Results-

Experiment 12A Results



6. Add 3 drops of the simulated anti-Rh serum in each Rh well of the six tray.

7. Use separate toothpicks to stir each sample of serum and blood. Record your observations in the table below.

	Anti-A serum	Anti-B serum	Anti-Rh serum	Blood type
Crime scene	Bubbled/Clump	Bubbled/Clump	Stayed Same	O
Victim	Stayed Same	Color change (orange)	Stayed Same	A
Suspect #1	Bubbled/Clump	Color change (orange)	Bubbled/Clump	B
Suspect #2	Stayed Same	Color change (orange)	Stayed Same	A
Suspect #3	Bubbled/Clump	Stayed Same	Bubbled/Clump	A
Suspect #4	Stayed Same	Stayed Same	Stayed Same	AB

2-B: Measurement of hematocrit level

Experiment 12B Results

Average Hematocrit Percentage (Female)	Partners Hematocrit Percentage (Female)
36-46%	44%

Discussion- The results for experiment for 12A told us what each “person's” blood type was and it was honestly a little bit confusing trying to figure it out based on what they react to and didn't react too. In a couple of the blood samples they ended up turning a bright orange color after dropping the different anti-antigens instead of clumping up how it was supposed to, which might have been an experimental error. In experiment 12B it was really cool to be able to see how exactly we can get hematocrit levels. I am terrified of needles and pricking my finger so my lab partner had done it and her levels turned out to be 44%, which was in the average limit. Overall the laboratory 12 experiments were very interesting and they helped me gain more knowledge on hematology and what exactly our hematocrit levels should be at on average.

Conclusion- The results in experiment 12A showed how to get the specific blood type of a person based on how the simulated blood sample reacts to different simulated anti serum samples. The results in experiment 12B allowed us to get the hematocrit levels of our own blood and compare it to the average percentages of peoples hematocrit levels. In conclusion, doing the laboratory was important to see where your blood levels stand and the main purpose of laboratory 12 was to determine the ABO and Rh blood type of stimulated blood and determine the hematocrit and hemoglobin content of your own blood.