

**Permeability of Red Blood Cells**

**Name**

**BIO1140 Section A**

**Demonstrators:**

**Name**

**Name**

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**Table 1.** Mean and standard error observed in the hemolysis time of Red Blood Cells from 5 different solutions tested.

Solution	Time (s) <sup>a</sup> T #1: <sup>b</sup> T #2: <sup>c</sup> T #3:	Mean	Standard Deviation	Standard Error
Distilled Water	<2 <2 <2	<2	0	0
Triton X	<2 <2 <2	<2	0	0
Ethanol	<2 <2 <2	<2	0	0
Thiourea	90 81 88	86.33	3.86	2.23
Dextrose	>1200 >1200 >1200	>1200	0	0

<sup>a</sup> Trial #1

<sup>b</sup> Trial #2

<sup>c</sup> Trial #3

What are the factors that affect the diffusion of the solutes tested in the permeability experiment?

Factors that affect the diffusion of each of the solutes tested are the size of the solutes and solubility.

How do these factors affect the diffusion of solutes?

For size, the smaller the solutes, the faster the rate of diffusion. The rate of diffusion for ethanol was a lot faster than dextrose. Dextrose is a sugar, and the molecules are a lot bigger in comparison to ethanol molecules.

The solubility of each solute also determined if the rate of diffusion would be slower or faster. The solubility of each solution is determined by the polarity of the molecule. Increased solubility is a characteristic of polar molecules, and they would diffuse through transmembrane proteins to get into the red blood cell. Decreased solubility allows simple diffusion, where the molecule easily crosses the membrane.