Cellular Processes in Amoeba Proteus

BIO1140

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Table 1 – Mean Hemolysis Times observed in five different Solutions

Solution Type	Time (Seconds)	
	Average Hemolysis Time	Standard Error
Bi-distilled Water (ddH2O)	2 [a]	0
Urea	2.4	0.69
Ethylene Glycol	11.52	5.39
Sucrose	924.13	51.15
Glycerol	1200	0

[a] If hemolysis occurred in less than two (2) seconds, it is considered to have gone through hemolysis instantaneously, 2 was used for the calculation.

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

   The factors that affect the diffusion of the solutes tested in the permeability experiment are: permeability of the cell membrane of the red blood cells to specific solutes in each of the solution types and the concentration of specific ions in both the red blood cells and solution.

2. How do these factors affect the diffusion of solutes?

   If the cell membrane is more or less permeable to certain solutes in each of the solution types it would affect the rate of diffusion. It would take longer to diffuse if the membrane is less permeable and diffuse faster if the membrane is more permeable to the solute. Hemolysis is when the red blood cells burst due to being in a hypotonic solution. If for example the solution that the red blood cell is being mixed with has less sodium ions than the red blood cells, the red blood cell will instead shrink (crenation) instead of grow in size which leads to hemolysis. Overall these two factors can vastly affect the rate of diffusion of all solutes present.