

Normally potassium iodide is referred to as an organic compound and is less hygroscopic thus it has the property of working easily with other chemical reactants. Usually, because iodine is a mild oxidizing agent it thus oxidizes easily when mixed with chlorinated items. Potassium iodide is said to be a precursor to silver(I) iodide, which is thus used to provide high speed photographic film:  $KI(aq) + AgNO_3(aq) \rightarrow AgI(s) + KNO_3(aq)$ . On the other hand protein albumin refers to any kind of protein that is water soluble that is moderately and soluble in any concentrated salt solution. Glucose ( $C_6H_{12}O_6$ ) is a very important carbohydrate that is used as a source of energy. The principles behind these diagnostics are readily demonstrated, using potassium iodide as the chromagen (color-change reagent) (Lyday, 2005). Different sugars can be used to indicate the specificity of the reaction catalyzed by glucose oxidizes. "When a dialysis tubing which is a semi permeable membrane tubing where it can be used for diffusion with solutes or osmosis if used with water only. Osmosis is when water passes through a semi-permeable layer to reach equilibrium. Diffusion, on the other hand, allows the movement of molecules from high concentration to low concentration. It will only allow molecules to pass through a semi-permeable membrane or layer if the molecule is small enough to fit through the membrane or a membrane's pore. This usually results with the effects of diffusion through a membrane only really affects small molecules, and almost never larger molecules. Dialysis tubing is used in clinical circumstances to ensure a filtered flow of molecules, preventing the flow of larger solute molecules. Small molecules can be "washed" out of a solution which is pumped through the tubing into a solvent, usually water, which surrounds it and in which they can be flushed away". To demonstrate the semi permeable membrane to glucose is put in the tubing and the mixture of potassium is put, first iodine impacts a dark yellow organic substance. The blue compound got as a result of the mixture is pronounced to be the test for iodine. Iodine will occur in a very friable, bluish black color and containing metallic (Waszkowiak, 2007).

### **Hypotonic Solution**

This is a solution that has more water (less solute) compared to the cytoplasm of the cell. If the solution that surrounds the cell is hypotonic then osmosis causes water to have a net flow into the cell leading to the swelling and further expansion of the cell. When the cell of an animal is placed in a hypotonic environment then the cell will eventually rupture due to osmotic pressure. However, in the case of a plant cell it will not rupture but will become turgid because it has a cell wall that prevents it from bursting, osmotic pressure is in fact what helps the plant from wilting and losing its shape.

### **Hypertonic solution**

This refers to a solution that contains a higher concentration of solutes than that of the cell that resided on the solution. Since the solution has more solutes then water is actually drawn out of the cells by osmosis. If a cell is placed in, a hypertonic solution then water molecules will diffuse out of the cell. Eventually the cell will shrink however not all the cells are known to shrink; some do not shrink due to osmoregulation (Sulfate, 1999).

### **Isotonic solution**

This refers to a solution that has the same concentration or tonicity as some other solution with which it is compared. Since the level of solutes is equal then there is no net flow of water across the cell membrane. When separated by a semi permeable membrane then osmosis does not occur.

What would you expect if a cow's red blood cell was placed in each of the following solutions: 1. 10% salt solution 2. 0.9% salt solution 3. 0.02% salt solution

If the animal red blood cell was placed in 10% salt solution then water will be drawn out of the cell through osmosis. The cell will then shrink and loses its shape. This is because the solution is hypertonic and the concentration of solutes is higher than that of the red blood cell.

If the cow's red blood cell is placed in a 0.9% salt solution then the cell would remain the same because the concentration of the solution is the same as that of the red blood cell. There would be no any net flow of water across the cell membrane, osmosis will actually not occur. The solution is Isotonic and the tonicity is the same.

If the same red blood cell is placed in a 0.02% salt solution the results would be different because the solution has less solute compared to the cytoplasm of the cell. Water will then flow into the cell through osmosis the cell will swell and eventually rupture because of the high osmotic pressure. The process of red blood cells rupturing or bursting is referred to as haemolysis.

### **Work Cited**

Lyday, P. (2005) *Iodine and Iodine Compounds in Ullmann's* : Encyclopedia of Industrial Chemistry, Wiley-VCH, Weinheim.  
Sulfate, Iobenguane. (1999) *Injection Diagnostic package inserts*. Bedford, MA: CIS-US, Inc. July

Waszkowiak ,Katarzyna (2007) *Effect of storage conditions on potassium iodide stability iniodised table salt and collagen preparations:* International Journal of Food Science &Technology, Volume 43 Issue 5, Pp 895 - 899