Tonicity is a measure of the effective osmotic pressure gradient of two solutions separated by a semi permeable membrane.

**Isotonic solution**: A solution having the same osmotic pressure as a body fluid.

**Hypotonic solution**: A solution having a lower osmotic pressure than that of a body fluid.

**Hypertonic solution**: A solution having a higher osmotic pressure than that of a body fluid.

If the cell exists in a hypotonic solution, water will flow into the cell and the cell will swell, even the membrane integrity may be impaired **(lysis).** In the hypertonic solution, the particle density is higher, so if the cell remains in the hypertonic solution, there will be a clear water movement and the cell will shrink to achieve osmolar balance out of the cell. In an **isotonic** solution the extracellular fluid has the same osmolarity as the cell, and there will be no net movement of water into or out of the cell.

All these changes are due to the movement of water from one compartment to another with no equal osmolar concentrations in media. **Osmosis** is the net movement of water across a semipermeable membrane from an area of lower solute concentration to an area of higher solute concentration. The amount of pressure required to prevent the movement of water into the concentrated solution is called the osmotic pressure of the solution. Solutions with the same osmotic pressures are called isoosmotic . In humans and mammals erythrocytes are without nucleus. Erythrocyte contains a special protein called hemoglobin. Blood appears red because of the large number of red blood cells, which get their color from the hemoglobin. The shape of a red blood cell is a biconcave disk with a flattened center - in other words, both faces of the disc have shallow bowl-like indentations (a red blood cell looks like a donut).

Hemolysis is the lysis and destruction of red blood cells. Hemolysis can occur due to different causes and leads to the release of hemoglobin into the bloodstream.

Solutions: Çözeltiler:

Isotonic solution: % 0,9 NaCl

Hypertonic solution: % 5 NaCl

Hipotonic solution % 0,1 NaCl

**Procedure,**

1. Prepare 3 different glass slides,
2. Drop each solution (isotonic, hypotonic and hypertonic solution) on the glass slides.
3. Drop blood samples on each glass slide with isotonic, hypotonic and hypertonic solutions.
4. Start observing the cells.