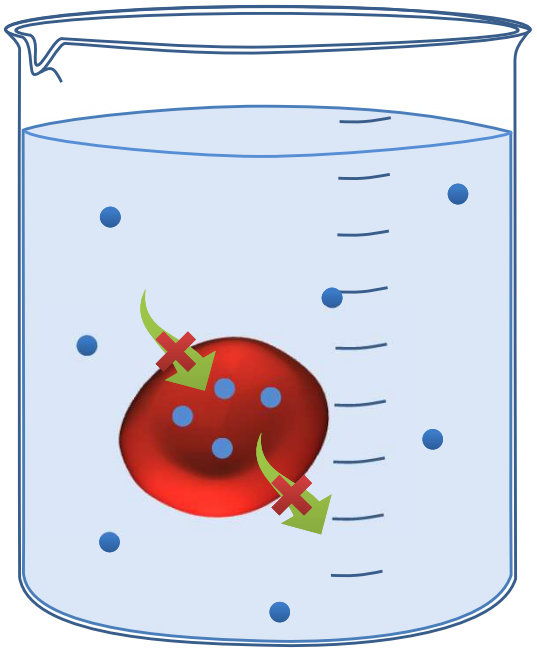
M3

Plasma membrane also helps in the transport of water in and out of the cell.

Let us see how exchange of water takes place in a cell through the plasma membrane.

When the cell is placed in **ISOTONIC SOLUTION**



Means medium surrounding the cell has same water concentration as that of the cell.

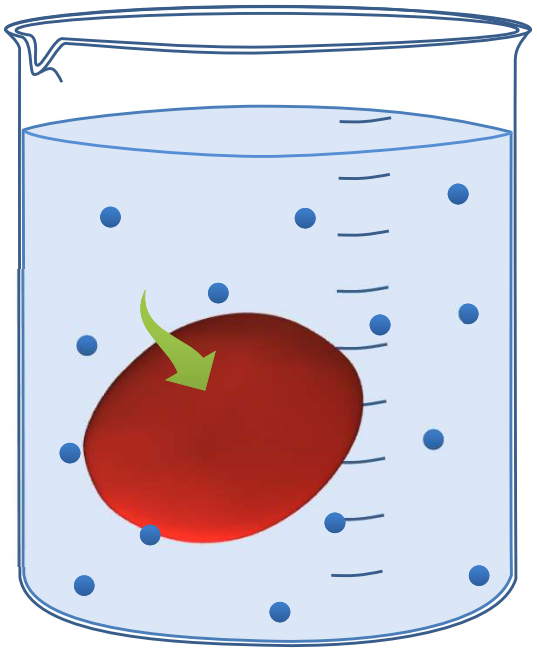
In this case there is neither entry of water in the cell nor exit of water

Not firm or hard

So the cell remains flaccid

No exchange of water

When the cell is placed in **HYPOTONIC SOLUTION**



Means medium surrounding the cell has higher water concentration than that of the cell.
i.e. outside solution is very dilute.

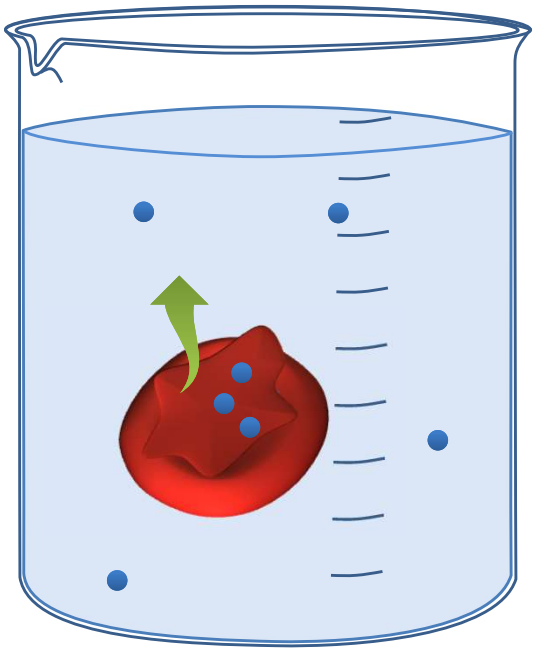
In this case water moves

Swollen

So the cell become turgid

Water enters ⟶ Inside cell ⟶ Swells up

When the cell is placed in **HYPERTONIC SOLUTION**



Means medium surrounding the cell has lower water concentration than that of the cell.
i.e. outside solution is very concentrated.

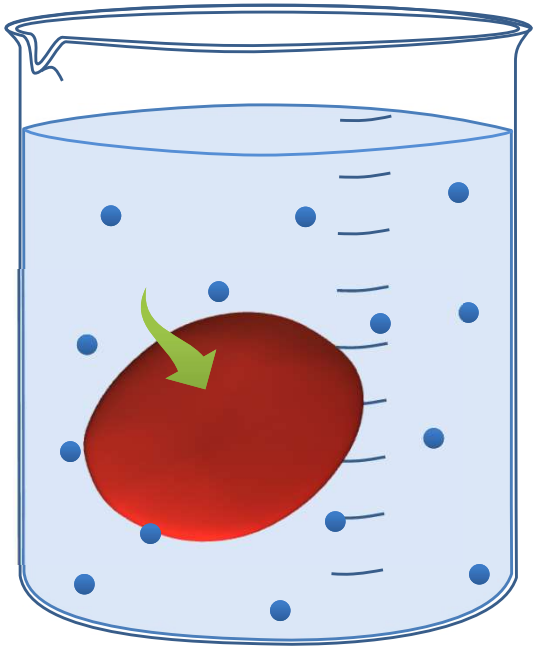
In this case water moves out of the cell

Shrinks

So the cell become plasmolysed

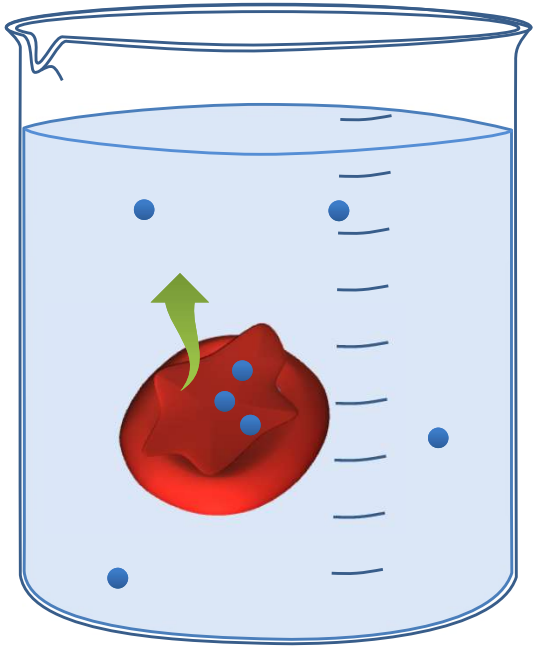
Water comes → Outside cell → Shrinks up (Plasmolysis)

HYPOTONIC SOLUTION



Here water moves from outside to inside.

HYPERTONIC SOLUTION



Here water moves from inside to outside.

So we see that water always moves from a region of higher concentration to a region of lower concentration.

Movement of water takes place through plasma membrane.

This process is known as **Osmosis.**

So how do we define osmosis.

The passage of water from a region of high water concentration through a selectively permeable membrane (e.g. plasma membrane) to a region of low water concentration is called as osmosis.

It is a pure mechanical process.

Does not require energy.