Plant Physiology:Lab(2)

Acidity & Al Kalinty & Buffers

The third stage

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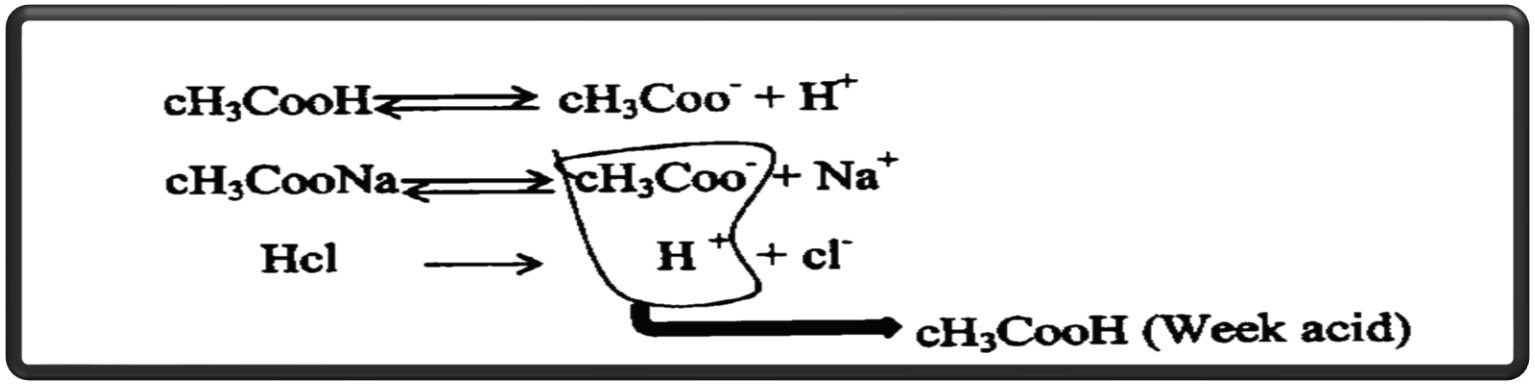
- **Plant cell or tissue of:**
- **90% water**
- **10% chemical compounds carbohydrate, enzymes, salts, proteins**
- **All biochemical reaction occur within the plant cell uses the water present in the cell.**
- **Pure water is the standard by which all other solution are compared because water is an ionic ally neutral solution.**
- **Acids are molecules that release hydrogen ions (H^*) when dissolved in water. Acids increase the concentration of Ht in a solution.**
- **Base are molecules that remove H^* from solution, Bases decrease the concentration of H^* in a solution when the proportionately less. By general agreement, the scale(pH stands for the potential of hydrogen ions).**

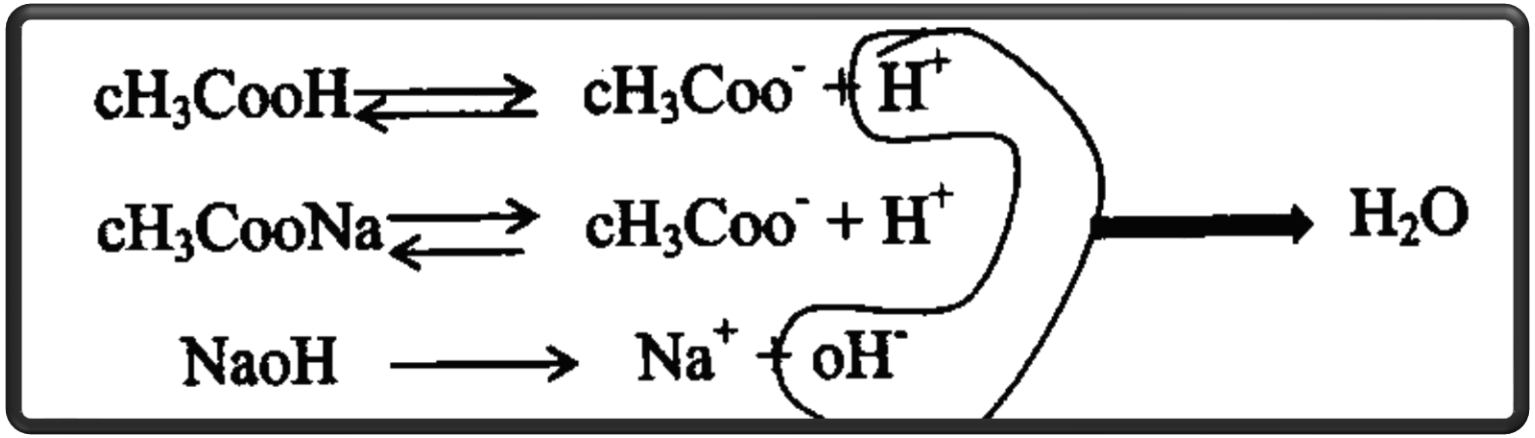
- **Buffers:-** they are chemicals that absorb excess H' as the pH decreases (more acidity) or release H* as the pH increases (more Al kaline). Buffers minimize changes in pH.
- In most organisms, the pH is kept relatively constant by Buffers.
- Most biological fluids (e.g. milk, blood) contain buffers.
- And in plant cell there are buffer fluid like:
- Citric acid, oxalic acid, A ammonium hydroxide, carbonic acid.
- **Maximum Buffer capacity: -** is the quantity of strong acid or bases that must be added to change the pH of 1 liter solution by one pH unit.
- **Note :-** buffer solution only can maintain the pH stable in some range (called buffer capacity) and the buffer capacity is affected by :-
- 1- The concentration of the buffer component.
- 2- The quality of the butter component.

Mechanism of How buffer working:-

- **a) With strong acid:-**



b) With strong base:-



Methods used to measure the pH:-

- **1-Litmus paper**
- **2-pH – meter**
- **Q:- three solution, three pH were 9, 5, 4.**
- **After adding a chemical compound to them the pH changing as show in**
- **A B c**
- **9 5 4**
- **7 8 4.1 after adding**
- **- what the nature of the chemical compound that added**
- **- which of three solution is a buffer ?**