

CHAPTER 11:

APPLIED PHYSICS XI

INTRODUCTION TO BIOLOGY:

While the Catabolism means destruction of macromolecules in smaller ones, the anabolism is the opposite.

Autòtrofs get E through reactions of photosynthesis (light energy). They feed through inorganic matter.

Heterotrophic get E through reactions "Red-Ox."; get the E through aerobic respiration (in the presence of oxygen), whereas heterotrophic anaerobic obtain E through fermentation. They feed through organic matter.

Metabolic cycle (can be defined as aerobic Catabolism):

1. destruction of macromolecules into their constituents (fats are those that have more energy).
2. Getting Ac-CoA in the oxidation of fatty acids, monosaccharides, amino acids ...
3. The acetyl coenzyme is added to the Krebs cycle (the most common route of fuel molecules (generates E). Enzymes also does control ["breathing chain"].

Glycolysis promises extract E of glucose (sugar) without oxygen; pyruvic acid is formed which completely degenerates in ethanol, lactic acid, acetaldehyde ...

To separate fermentation is necessary microorganisms.

In respiration, pyruvic acid from glycolysis enters the Krebs cycle and ends in CO₂ and H₂O.

Let us now discuss the Milky Fermentation: lactose, glucose, galactose + ... microorganisms generates lactic acid.

In my view, the excess sugar to be anaerobic decomposition of a lack of O₂ but will not produce as much energy that is stored in muscles Lactic Acid.

The stirring lactic acid reaches the liver and is broken down into glucose again.

ALUMINIUM:

Aluminum as the most abundant element on earth:

It turns out that the bathroom is tough and malleable aluminum product (steel for example).

Also buried pipes (as well as copper and lead)

It is also conductive, anti-corrosion of seawater ...

Applied Canned (aluminum foil).

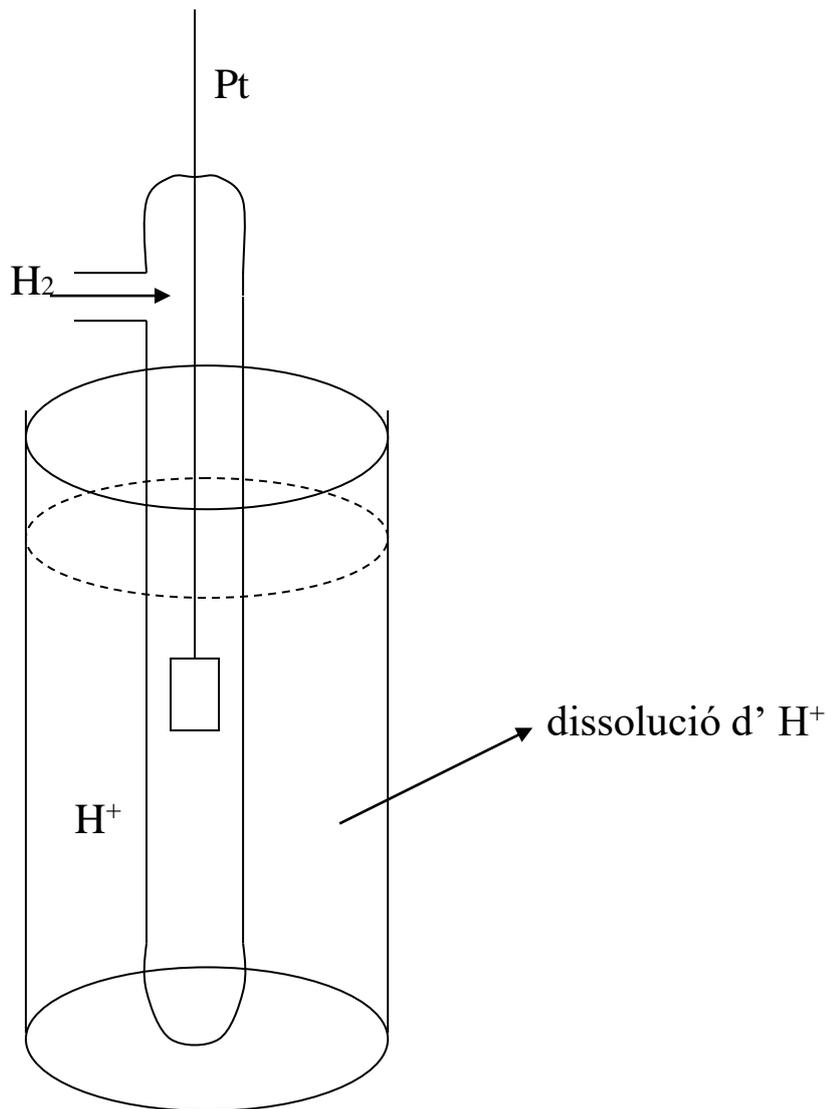
Found solid aluminum and as an oxide in **bauxite** (apart from other compounds such as $\text{Al}(\text{OH})_3$, AlOOH , iron, oxide silicic, $\text{NaAl}(\text{OH})_4$...); and solve it in cryolite to generate alumina (Al_2O_3).

Reactions:



and obtain Al^0 by electrolysis at the anode (while the O_2 is formed at the cathode. Al^0 is obtained liquid at the bottom of the tank in carbon electrode.

Take to explain why the values of the standard reduction potential are all calculated with respect to a reference electrode: the hydrogen.



Put another way, namely the potential for a "semipila" need a reference electrode: $H_2 / 2H^+$ state standard or normal conditions: pressure = 1 atm., and temperature = 25 ° C and has a standard potential value of $\Delta\xi^0 = 0$

The platinum plate gives or accepts electrons.

Depending on whether the force was left to right (eg Cu^{2+}/Cu^0) or vice versa, the signs are > 0 or < 0 .