

Vidya Bhawan Balika Vidyapeeth Lakhisarai

Arun Kumar Gupta

Class 11<sup>th</sup>

Sub. Biology

Date:- 16.01.21

### **Lysosomes**

These are membrane bounded vesicles that are produced by the Golgi apparatus. They are rich in several hydrolytic digestive enzymes (hydrolases-lipases, proteases, carbohydrases, etc). As these are optimally active at the acidic pH (less than 7). Therefore, are also called acid hydrolases and are capable of digesting macromolecules from various sources like carbohydrates, lipids and nucleic acids.

#### **Functions**

##### **Lysosomes possess the following functions**

- (i) They digest the food contents (intra cellular digestion).
- (ii) They also perform extracellular digestion.
- (iii) They also digest the old and useless organelles of the cells.
- (iv) They also have functioning in cell division.

These are called suicidal bags due to the presence of hydrolytic enzymes.

De Duve observed the rounded bodies in liver cells and called them pericanalicular dense bodies (1949).

### **4. Vacuoles**

Vacuole are a large membranous sac found in the cytoplasm. These store substances that are not essentially useful for the cell (like water, sap, excretory product and other materials). Plant vacuoles contain not only water, sugars and salts but also contain pigments and toxic molecules and also occupy up to 90% of the volume of the cell.

The vacuole is bounded by a single membrane structure known as tonoplast which in plant cells, facilitates the transport of materials and some ions against the concentration gradient inside the vacuole. Thus, the concentration of material is tend to be the higher in vacuole, than to be in the cytoplasm

Animal cells also have vacuole, but they are much more prominent in case of plant cells. Thus, plant cells have typically large central vacuole filled with a watery fluid that gives added support to the cell.

#### **Following types of vacuoles are being found in different organisms**

- (i) Contractile Vacuole They play an important part in osmoregulation and excretion in Amoeba, etc. It occurs mostly in protistan and algal cells that are found mainly in water.
  - (ii) Food Vacuole They occur in the cells of mainly protozoan protists. These are formed by engulfing the food particles, i.e., by the fusion of lysosome and phagosome. The digested material thus, passes out into the surrounding cytoplasm.
- Air vacuoles and sap vacuoles are the another types of vacuoles being formed by the cells.