

## Lab 6:-

## Plastids

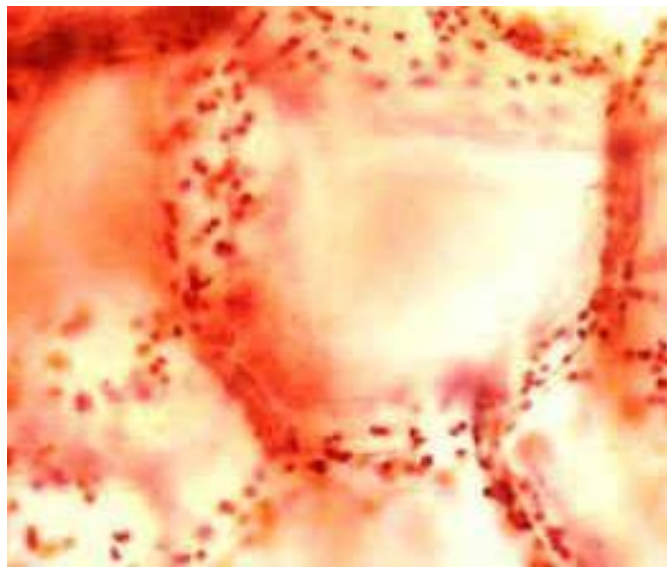
**Plastids:** - They are large cytoplasmic organelles, they synthesis and store carbohydrates that vary in structure and function and size. Most plant cells contain plastids, having their origin from proplastids. There are various types of categorized according to their structure, contents, and function.

- 1- Coloured plastids:-** chloroplasts (chlorophyll) and chromoplasts (carotenoids)
- 2- Colorless plastids (leucoplasts):** They include amyloplast (starch store), proteinoplast (protein store) and elaioplast (lipid store).

**A- Chloroplast:** - They are the primary type of plastids present in all green parts of plants which characterizing by their green pigment (chlorophyll). The chloroplasts can be found in leaves stems, petioles, pods, immature petals, sepals, tendrils and a variety of other green plant structures. Chloroplasts carry out the process of photosynthesis. Palisade and spongy mesophyll cells in leaves are the major sites for chloroplast development.



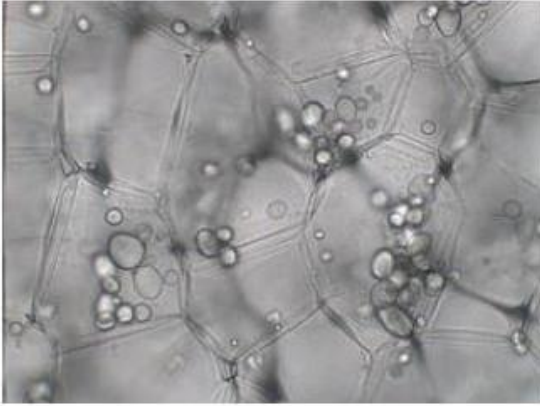
**B- Chromoplasts:** - They are colored types of plastids usually contain yellow and orange carotenoid pigments (carotenes and xanthophylls) which are the site of pigment accumulation in cells of flower petals, fleshy fruits and in a variety of other pigmented structures found in the diverse types of flowering plants. Chromoplasts that contain carotenoid pigments impart the red, orange, or yellow colors to various fruit (e.g., tomato fruits), roots (e.g., carrot roots), and petals. The main function of chromoplasts are assisting with pollination and seed dispersal.



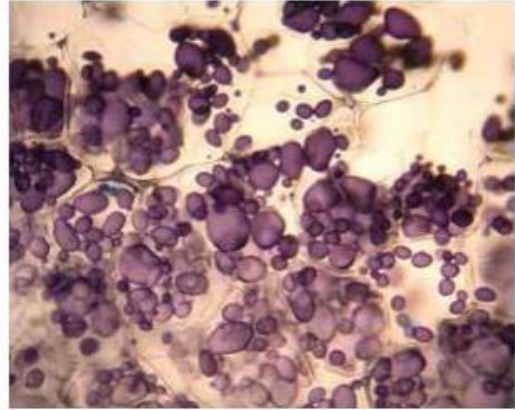
Chromoplasts in tomato fruits. Each red dot is a chromoplast that contains carotenoids

**C- Leucoplasts:** - They are colorless plastids. The main function is storing food materials. They do not involve in synthetic activities. There are three types of leucoplasts:-

**1- Amyloplasts:** - They are colorless plastid is found in some tubers and endosperms, they store starch such as tuber of potato.

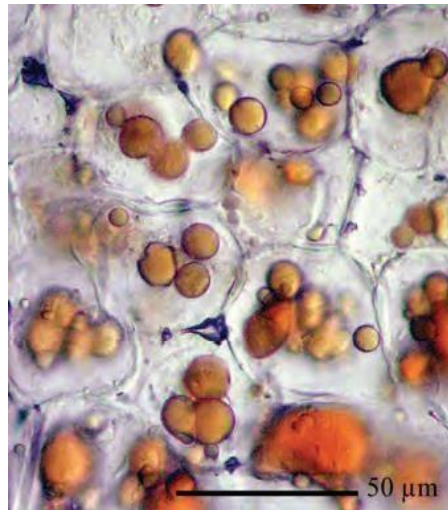


Potato cells with DI water



Potato cells with Iodine

- 2- **Elaioplasts:** - They are colorless plastid is found in the epidermal cells of Orchidaceae and Liliaceae. They store oils.



Section of an Avocado (*Persea americana*) fruit showing large lipid bodies

- 3- **Proteinoplasts:** - They are colorless plastid is found in some seeds and nuts. They store proteins such as tobacco root.