

### **Experiment No. 3:**

**Aim:** To study secretory tissue system through fresh material or permanent slides Orange rind /Lemon leaf

#### **Theory:**

The tissues that are concerned with the secretion of gums, resins, volatile oils, nectar latex, and other substances in plants are called **secretory tissues**. These tissues are classified as either laticiferous tissues or glandular tissues.

Secretory tissue consists of two kinds of tissues.

1. Laticiferous tissue and
2. Glandular tissues

#### 1. Laticiferous tissue

These consist of thick walled, greatly elongated and much branched ducts containing a milky or yellowish colored juice known as latex. They contain numerous nuclei which lie embedded in the thin lining layer of protoplasm. They irregularly distributed in the mass of parenchymatous cells. Laticiferous ducts, in which latex are found are again two types-

- i. Latex cell or non-articulate latex ducts
- ii. Latex vessels or articulate latex

#### **Latex cells**

Also called as "non-articulate latex ducts", these ducts are independent units which extend as branched structures for long distances in the plant body. They originates as minute structures, elongate quickly and by repeated branching ramify in all directions but do not fuse together. Thus a network is not formed as in latex vessels.

#### **Latex vessel**

Also called "articulate latex ducts", these ducts or vessels are the result of anastomosis of many cells. They grow more or less as parallel ducts which by means of branching and frequent anastomoses form a complex network. Latex vessels are commonly found in many angiosperm families Papaveraceae, Compositae, Euphorbiaceae, Moraceae, etc.

#### **Function**

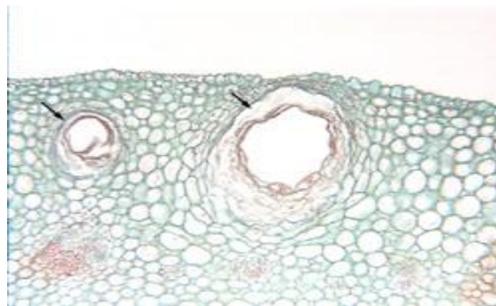
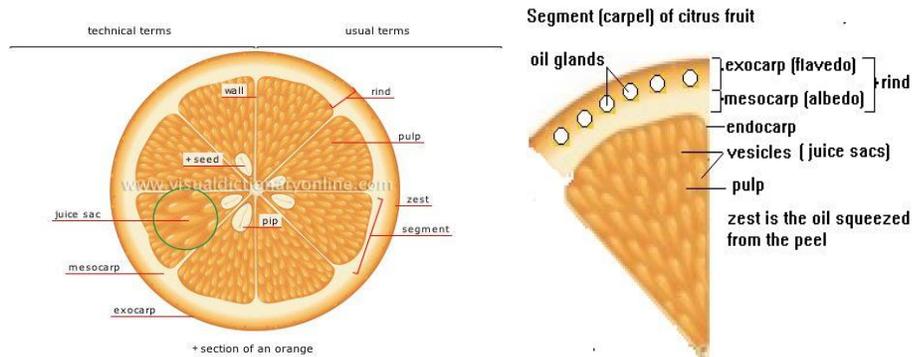
The function of laticiferous ducts is not clearly understood. They may also act as food storage organs or as reservoir of waste products, or as translocatory tissues.

## 2. Glandular tissues

This tissue consists of special structures; the glands. These glands contain some secretory or excretory products. A gland may consist of isolated cells or small group cells with or without a central cavity. They are of various kinds and may be internal or external.

Internal glands are

- Oil-gland secreting essential oils, as in the fruits and leaves of orange, lemon.
- Mucilage secreting glands, as in the betel leaf
- Glands secreting gum, resin, tannin, etc.
- Digestive glands secreting enzymes or digestive agents
- Special water secreting glands at the tip of veins



(T. S. showing Citrus oil gland)