LAB :(1):PLANT ANATOMY

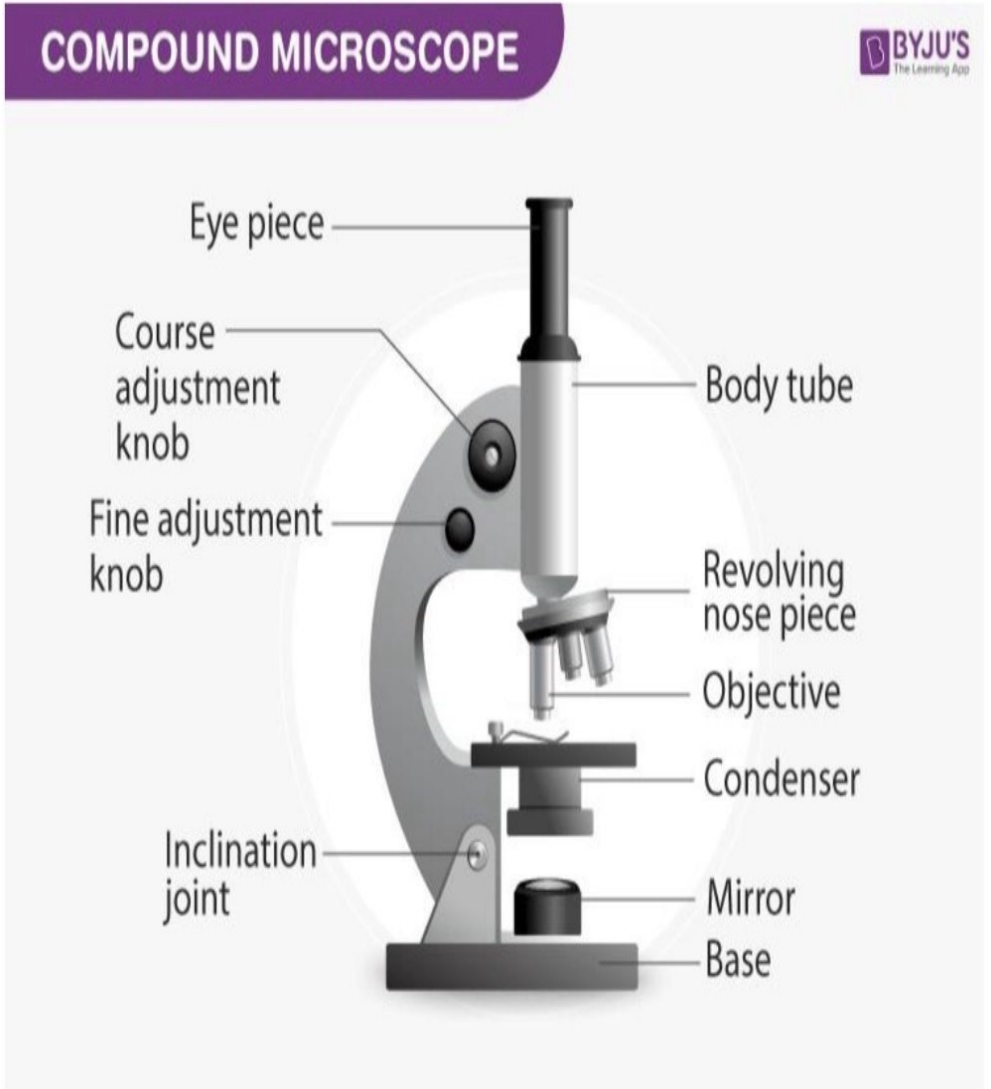
TYPES OF MICROSCOPES
(SECOND STAGE)

M.SC. DHUHA MOHSEN ABBAS

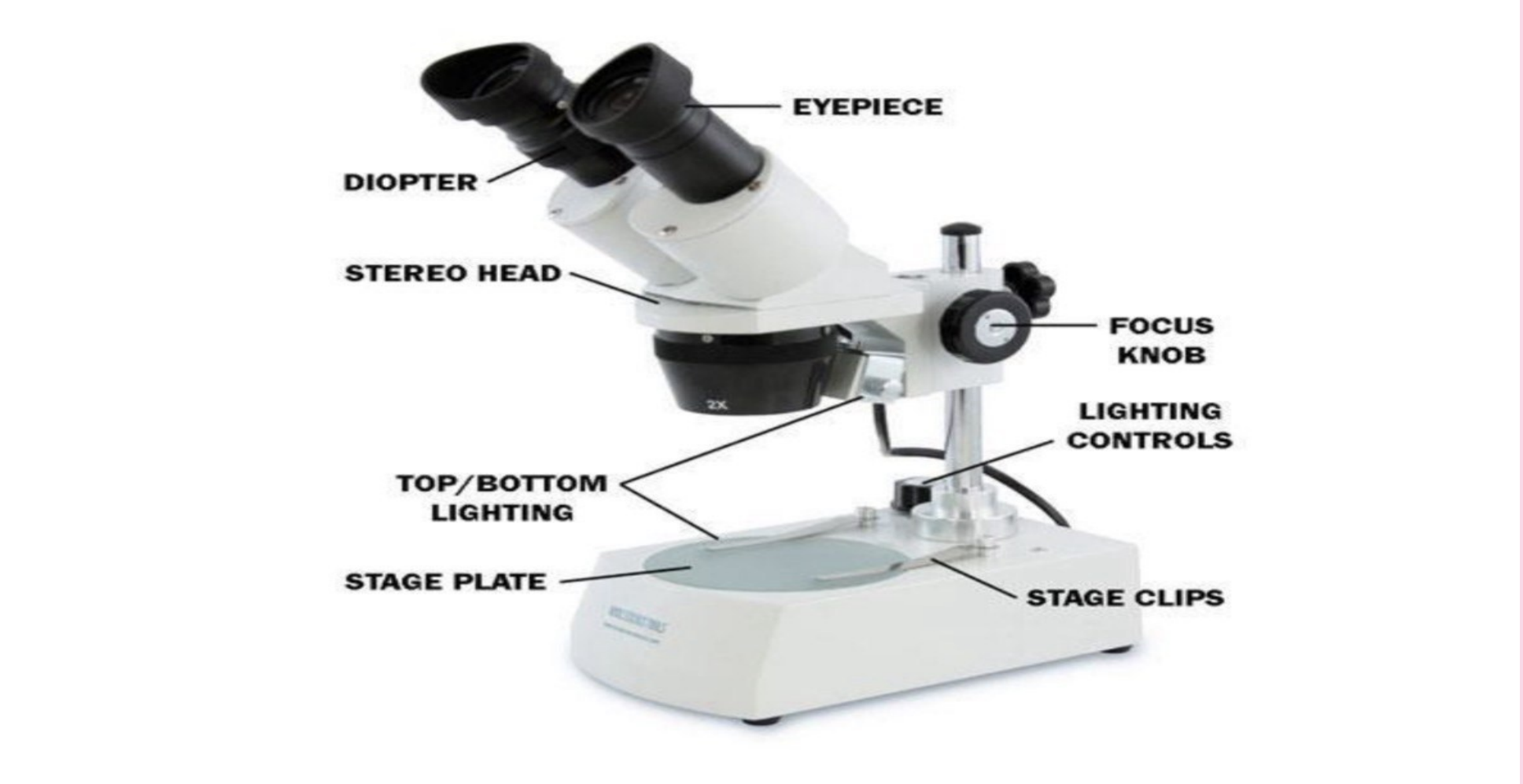
- UNIVERSITY OF MUSTANSIRIYAH
- COLLEGE OF SCIENCE
- DEPARTMENT OF BIOLOGY

TYPES OF MICROSCOPES:-

- **1- Compound microscope: -** It is a high resolution and
- uses two sets of lenses providing a 2-dimensional image of the
- sample. With this microscope, light is transmitted through
- a specimen that is mounted on a glass slide, and then focused
- through a series of lenses. Special lenses and optical
- refinements make magnifications of up to 2000 times.
- It is possible to observe Cell types, many of the larger
- cellular organelles (plastids, nuclei, vacuoles), and
- metabolic products such as calcium oxalate
- crystals and starch granules can be distinguished.

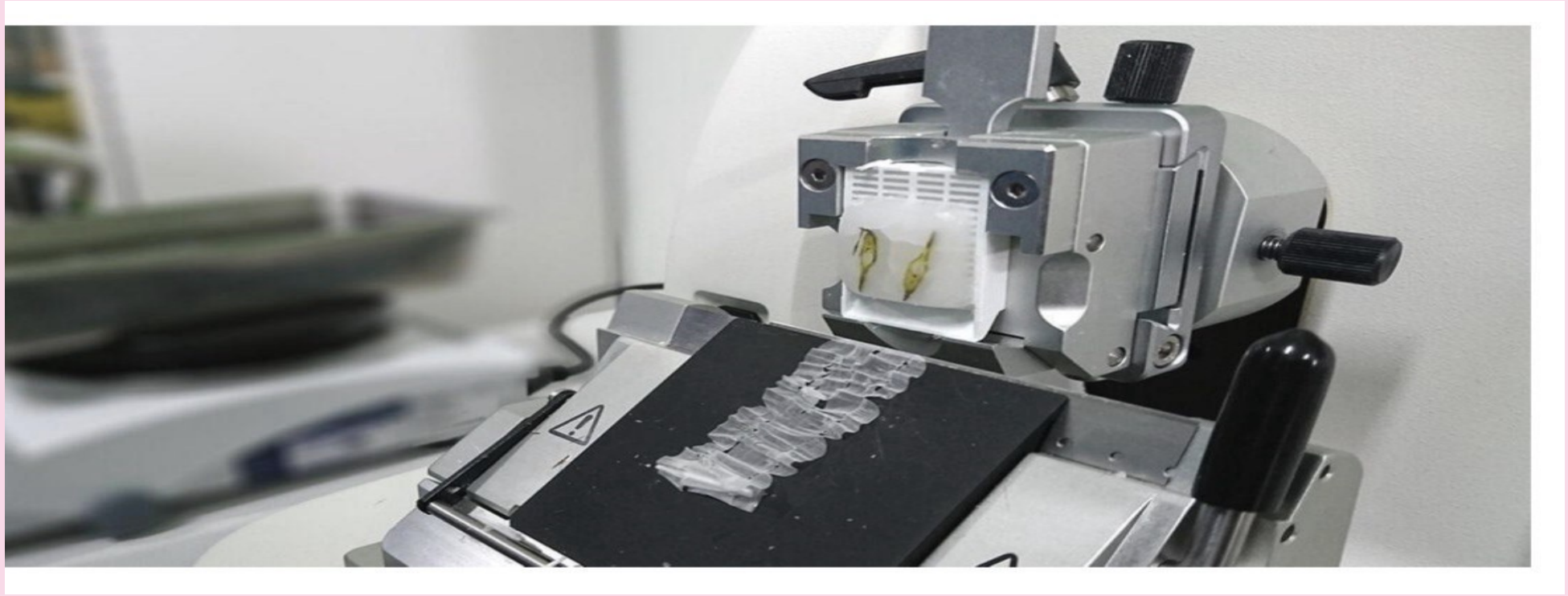


- **2- Stereo or dissecting microscope:-** It allows the user to view the subject magnified up to 250 times its normal size; they are used primarily to study the morphology of a specimen. The magnification is relatively low.

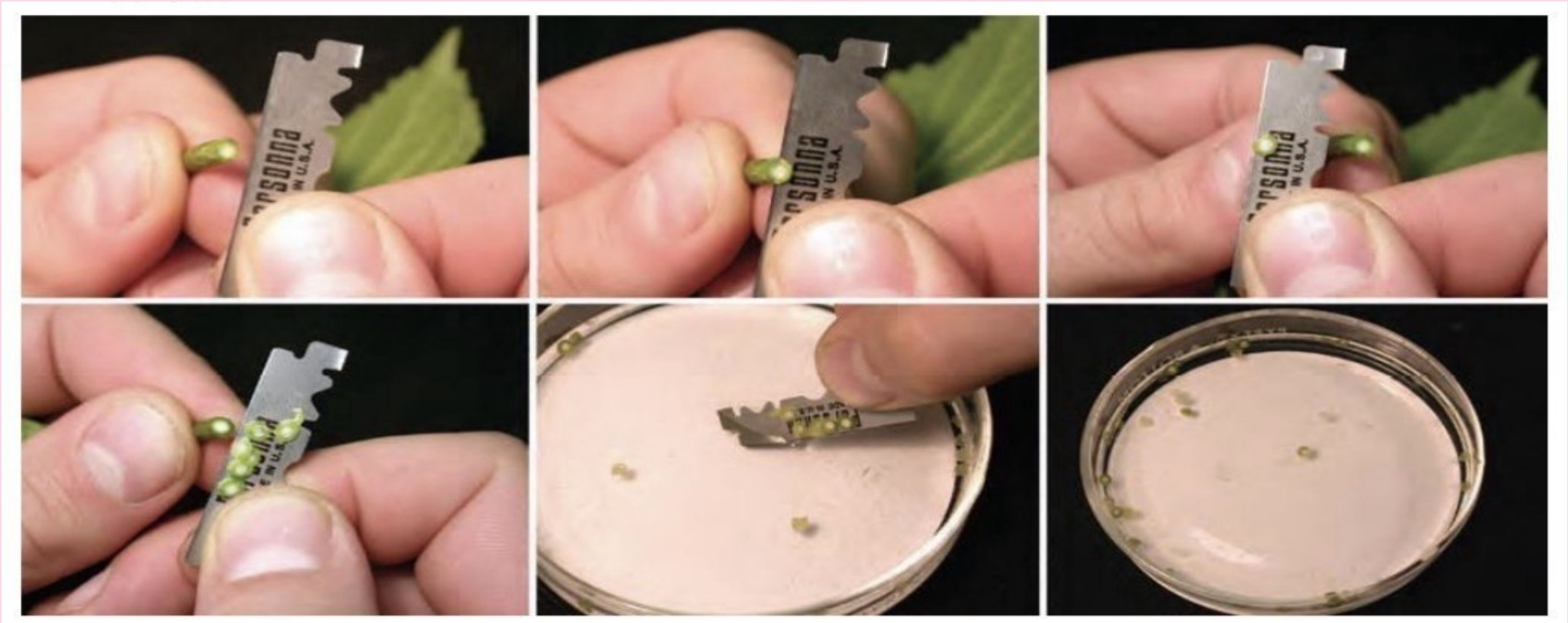


SECTIONING: - THERE ARE TWO METHODS OF CTIONING

- **A- Microtome: -** **It is alternative methods to cut plant sections include the use of hand and electric and freezing microtomes.**

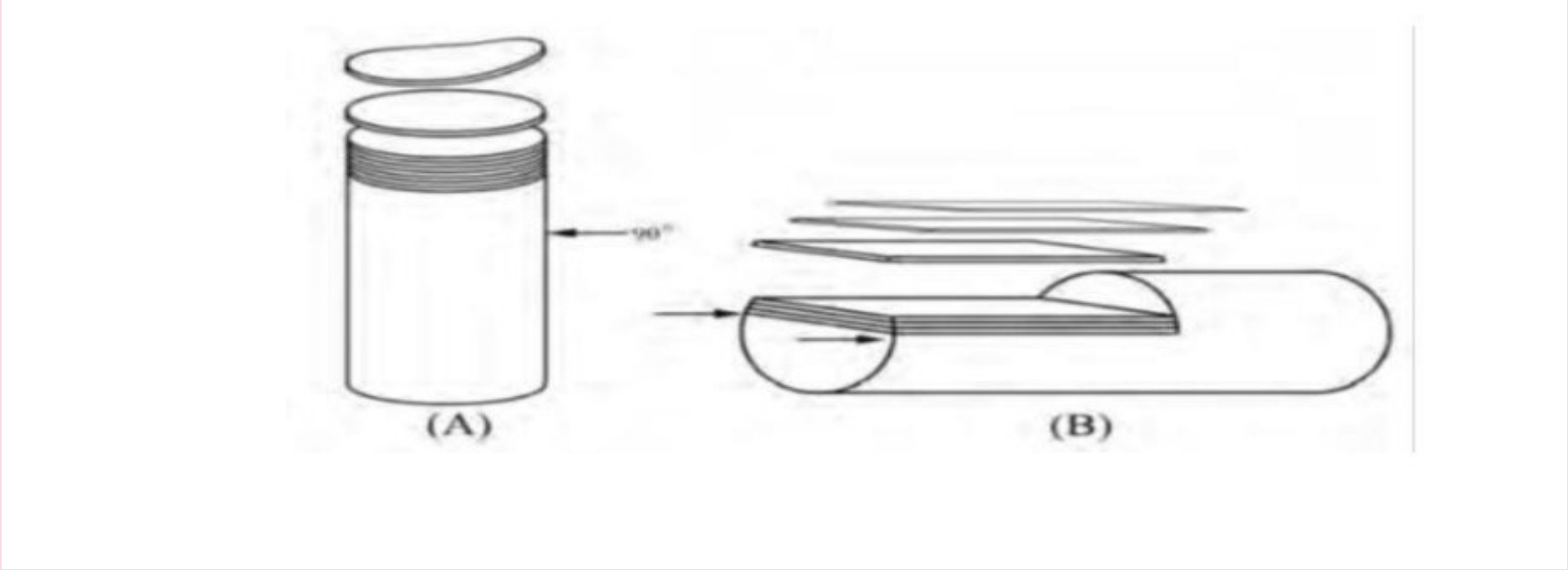


- **B- Free-hand sectioning of living plant tissues: -**
- **It is usually done with a single edge razor blade often provides a good method for rapid and inexpensive microscopic observation of plants internal structure as illustrated in figure below.**



SECTION TYPES:-

- There are various types of sections can be prepared depending on the shape of the organ.
- **A- Cross sections: -** When making cross (transverse) sections, it is important to cut at right angles to the longitudinal direction of the stem (or other organ) as illustrated below.
- **B- Longitudinal sections: -** Those which are cut lengthwise along the line of the long axis of an organ or tissue.



- **Practical work:-** **Ask student to prepare sections to any available plants like carrots, stems of celery etc. to illustrate the types of sections.**