

**Mustansiriyah University**

**College of science**

**Biology Dept.**

**Zoology**

**4<sup>th</sup> class**

**Laboratory Technique {*Histological Technique*}**

**(6)**

# Microtome knives

- Knives are modelled according to the tissue to be sectioned and the embedding medium.
- It is the greatest single factor for making good sections.
- There are many shapes, sizes and materials for microtome knives
- They were developed to fit certain microtomes and to cope with different degrees of hardness of tissues and embedding media.
- Can be made of metal or other wise
  - 1} Metal : standard steel & razor blade
  - 2} Non metal : glass & diamond

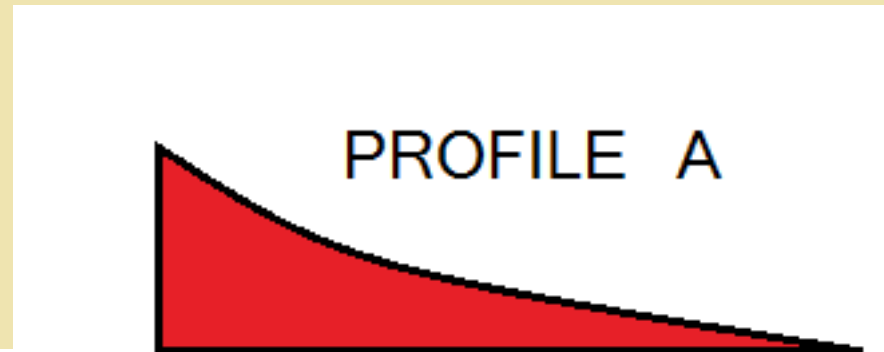
Disposable blades: produce consistently high quality sections and have replaced conventional microtome knives. Provide sharp edge from which 2-4 $\mu$ m thick sections can be cut. Made of high quality stainless steel.

# TYPES OF MICROTOME KNIFE

## A} PLANO CONCAVE KNIFE.

- ❑ One side of cutting surface is flat and the other is concave with different degrees of concavity.
- ❑ Extremely sharp, but delicate.
- ❑ Used for cutting soft samples like nitrocellulose embedded tissues.
- ❑ The plane surface is closest to tissue block.
- ❑ Sledge and rotary microtome.

## A} PLANO CONCAVE



## B} BICONCAVE KNIFE.

- It is the classical knife shape with concavity on both sides
- Introduced by **Heiffor**
- Rocking microtome and sledge microtome
- Length 100-250mm
- Less rigid
- Prone to vibration

# BICONCAVE



PROFILE B

## C} WEDGE KNIFE.

- Use in all type of microtome to cut all type of materials
- Both cutting surface are plane
- Known as standard profile
- Size 100-350mm



# WEDGE KNIFE



PROFILE C

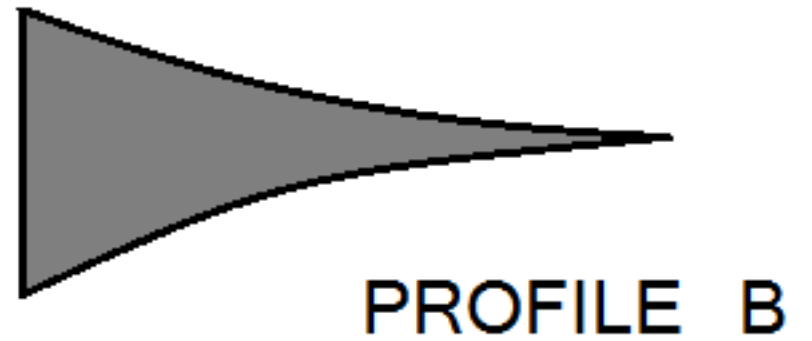
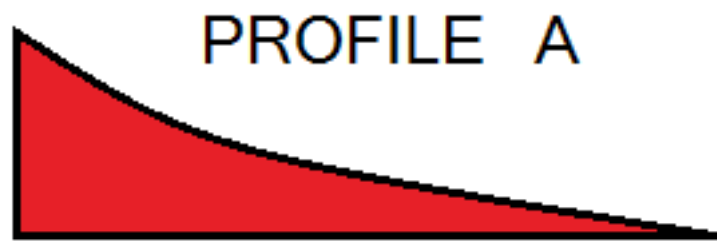
## D} TOOL EDGE / Chisel

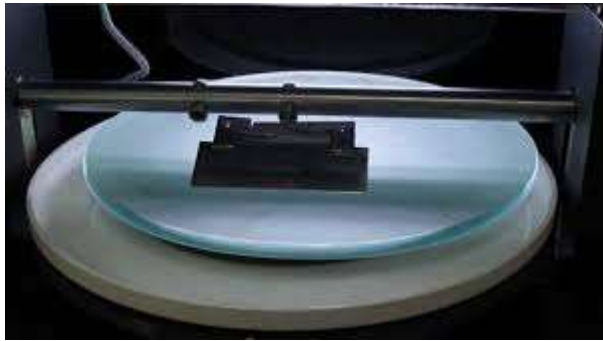
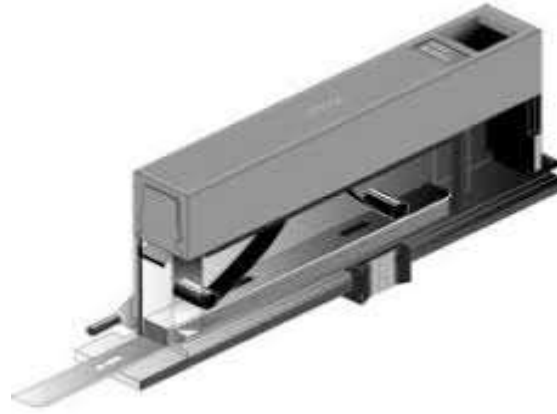
- Wedge knife with steep cutting edge
- Hard object( un-decalcified bone)
- Have detachable handle (to screw with holder)
- Wedge knife is stable for long time
- Need more force to achieve the cut
- Varying length available
- 80mm --freezing microtome
- 240mm-- base sledge microtome

# TOOL EDGE / CHISEL



PROFILE D







Move the Lever on the Handle from the upper position to the lower position and auto cutting commences.

