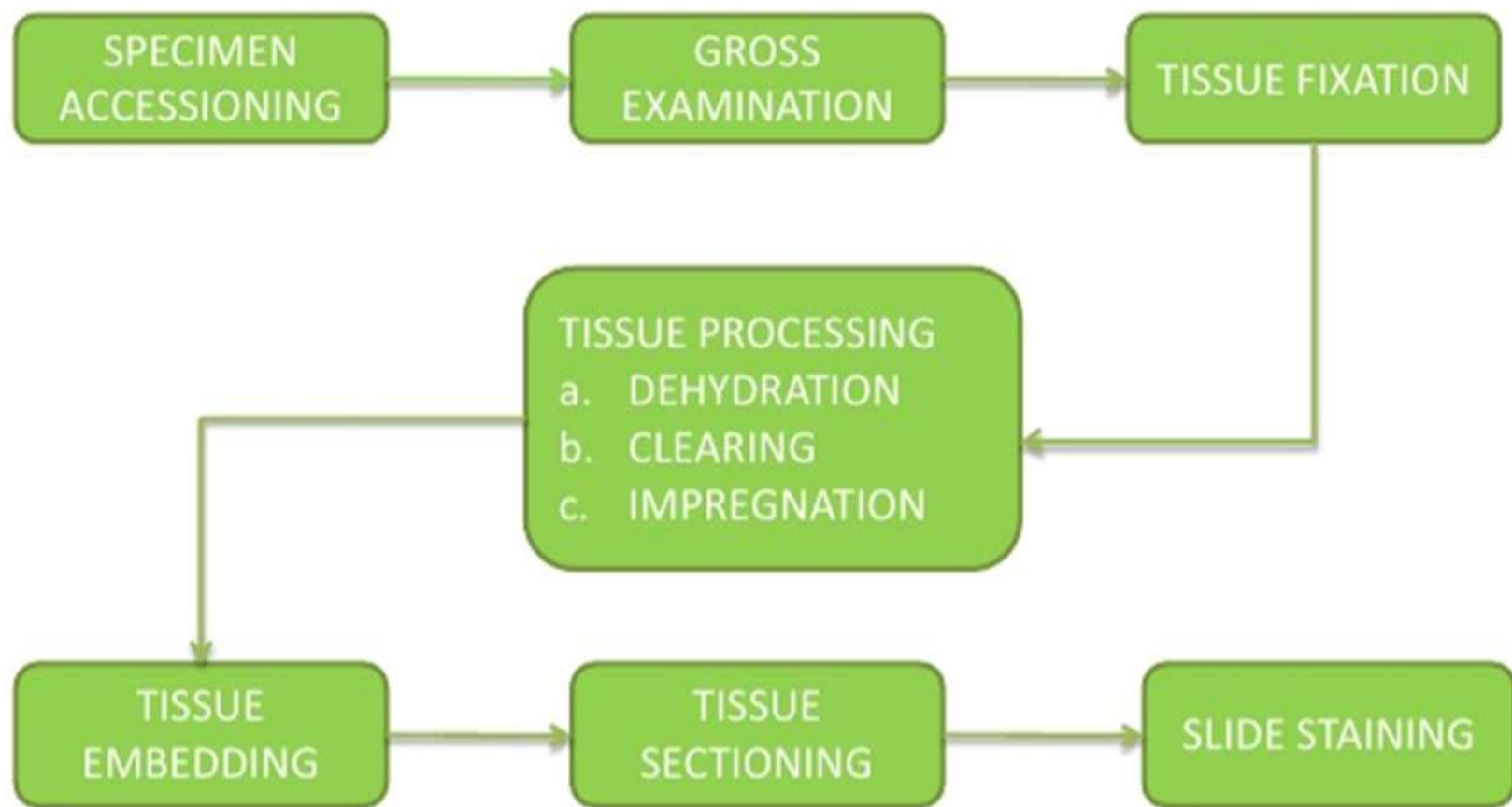


HISTOLOGY PROCEDURE



1-simple fixatives:

The most commonly used fixative is **Formalin** . it is prepared by mixing 40% formaldehyde gas in 100 w/v of distilled water . the resultant mixture is 100% formalin .routinely , 10% formalin is used which is prepared by mixing 10 ml of 100% formalin in 90 ml of distilled water .

Other simple fixative :

- 1- Picric acid .
- 2- Osmic acid .
- 3- Mercuric chloride.

ADVANTAGES FORMALIN

- 1- Rapid penetration
- 2- Easy availability & cheap
- 3- Dose not over harden tissue
- 4- Fix lipids for frozen section
- 5- Ideal for mailing

DIS ADVANTAGES FORMALIN

- 1-Irritant to the nose, the eyes and mucous membranes
- 2- Formation of precipitation of para -formaldehyde which can be prevented by adding 11-16% methanol .
- 3- Formation of black formalin pigment ,Acid formaldehyde hematic.

2- Compound fixatives :

a) Micro anatomical fixatives :these are used to preserve the anatomy of the tissue like ,10%formalin saline, Zenker's fluid ,Bouin's fluid .

b) Cytological fixatives: these are used to fix intracellular structures it two type

Nuclear fixative	Cytoplasmic fixative
Carnoy's fluid , Clarke's fluid	Champy's fluid , Regaud's fluid

c) Histochemical fixatives :These are used to demonstrate the chemical constituents of the cell like Cold acetone , Ethanol

4- Dehydration .

It is the process in which the water content in the tissue to be processed is completely reduced by passing the tissue through increasing concentration of dehydrating agents .

The various dehydration agents used are : Ethyl alcohol , Acetone , Isopropyl alcohol ,Dioxane .

The duration of the procedure can be noted down as :

- 1-30% alcohol – 1 hour .
- 2- 50% alcohol – 1 hour.
- 3-70% alcohol – 1 hour .
- 4-70% alcohol – 1 hour
- 5- 90% alcohol – 1 hour .
- 6- 95 % alcohol – 1 hour .
- 7-Absolute alcohol – 1 hour .
- 8- Absolute alcohol – 1 hour .



R.K. Tissue Embedding Cassettes





5- Clearing (Dealcoholization) .

It is the procedure where in the alcohol in the tissue is replaced by fluid which will dissolve the wax used for impregnating the tissues .

The various clearing agents used are :

1. **Cedar wood oil** : the best agent but is expensive .
2. **Benzene** : it is carcinogenic .
3. **Xylene** : it is most commonly used .
4. **Chloroform** : toxic and expensive .



6- Impregnation with wax

In this the tissue is kept in a wax bath containing molten paraffin wax for 6-8 hours. The wax is infiltrated into the interstices of the tissue which increases the optical differentiation & hardens the tissue & helps in easy sectioning of the tissue.

The various waxes which are used are : (paraffin wax, paraplast, Gelatin)

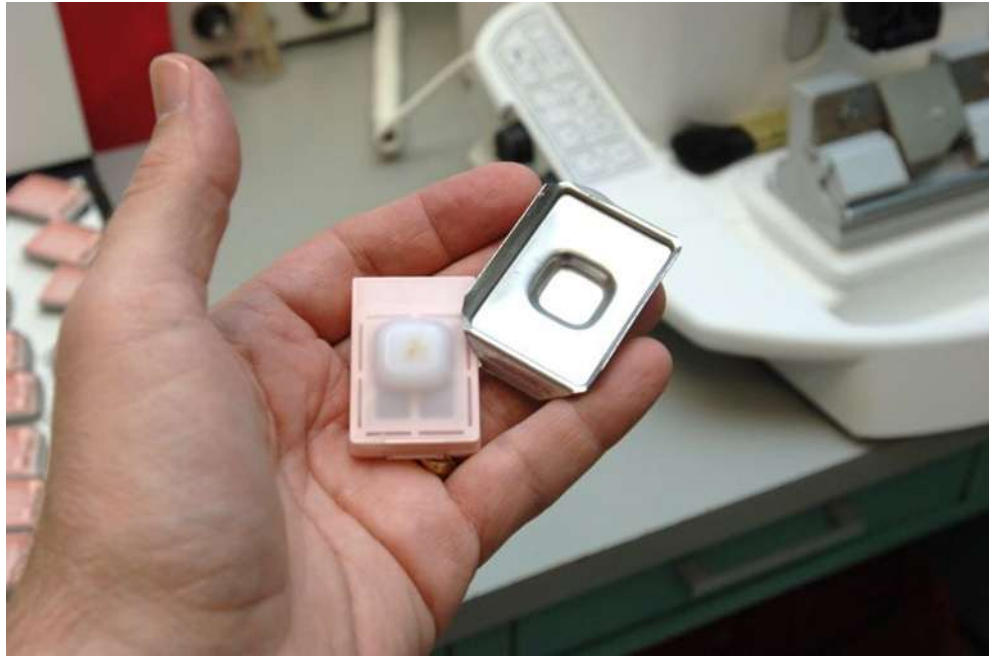


7- Embedding with wax

It is done by transferring the tissue which has been cleared of the alcohol to a mold filled with molten wax & is allowed to cool & solidify .after solidification , a wax block is obtained which is then sectioned to obtain ribbons .







Type of molds

A) Leuckhart's Molds : L-shaped brass pieces which is placed in opposing positions & can be manipulated to increase or decrease the size of the block be prepared .

B) Glass or Metal petri dishes

C) Watch glass .

D) Paper boats .

