



MICROTOMY

DR K SANTHOSH KUMAR M.Sc., B.Ed., Ph.D.

DEPARTMENT OF ZOOLOGY

POORNAPRAJNA COLLEGE, UDUPI

MICROTOMY



- Microtome - an instrument
- Microtomy - the process of cutting thin sections

The histological preparation involves stages -

1. **Fixation**- formaldehyde, Carnoy's fluid and Bouin's fixative.

2. **Dehydration**- increasing concentrations of ethanol

- replace alcohol with anhydrous system

 - like chloroform, xylol, benzene or toluene

 - ethanol and xylol were taken in 1:1 ratio

 - treatment with pure xylol

3. **Infiltration**- xylol and liquid paraffin ratio 3:1, 1:1 and 1:3

- fresh molten paraffin

4. **Embedding** - block making

5. **Sectioning** - trimming

- fixed to a block holder

- micron thin sections

- Meyer's fixative

(white of egg 50 ml, Glycerol 50 ml; Sodium salicylate 1 gm.)

6. **Slide preparation**

Slide preparation

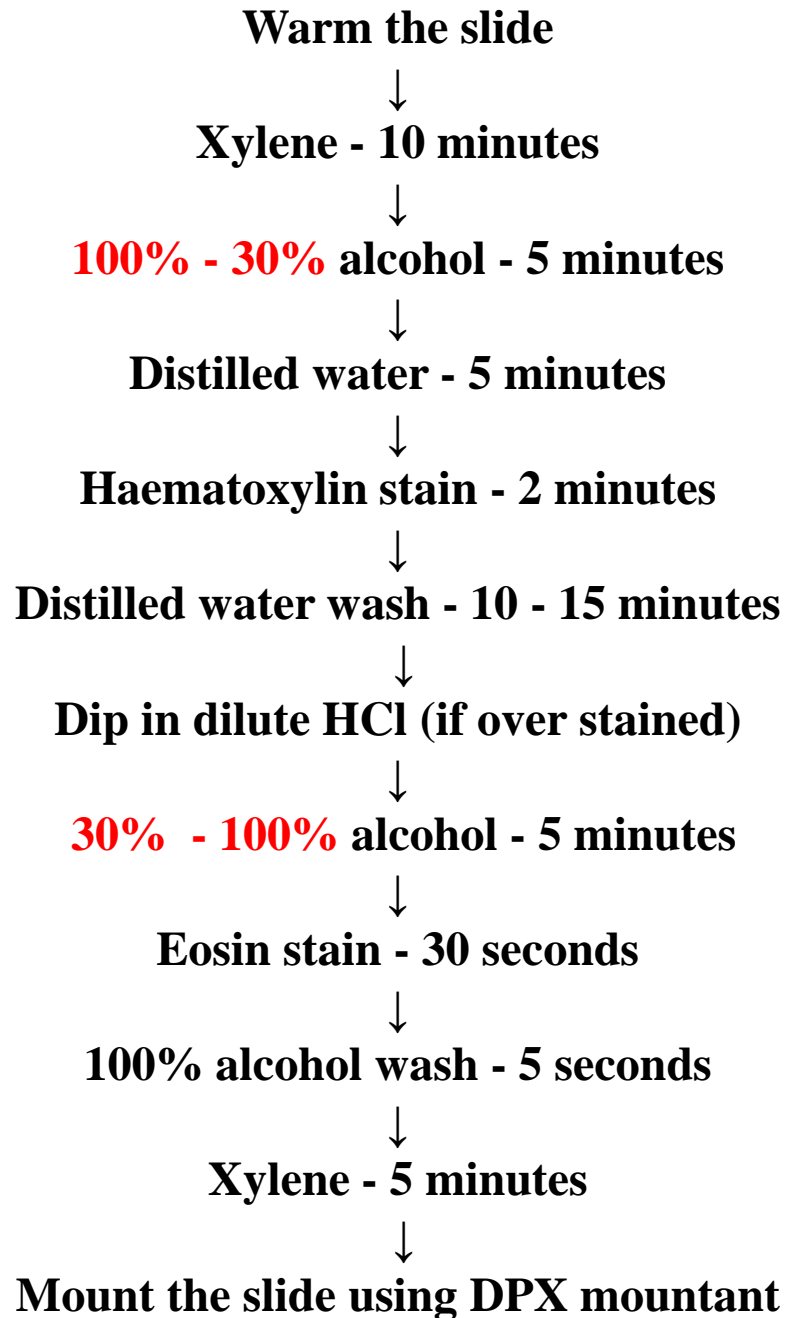


TABLE 1.2. Some Basic and Acid Dyes

	COLOR
Basic dyes	
Methyl green	Green
Methylene blue	Blue
Pyronin G	Red
Toluidine blue	Blue
Acid dyes	
Acid fuchsin	Red
Aniline blue	Blue
Eosin	Red
Orange G	Orange

TABLE 1.1. Summary of Hematoxylin and Eosin (H&E) Staining

CELL AND EXTRACELLULAR COMPONENT	STAIN REACTION
Nucleus	
Heterochromatin	Blue
Euchromatin	Negative
Nucleolus	Blue
Cytoplasm	
Ergastoplasm	Blue
General cytoplasm	Pink
Cytoplasmic filaments	Pink
Extracellular material	
Collagen fibers	Pink
Elastic fibers ^A	Pink, but not usually distinguishable from collagen fibers
Reticular fibers ^B	Pink, but not usually distinguishable from collagen fibers
Ground substance	Blue, but only if present in large amounts, as in cartilage matrix
Bone matrix (decalcified)	Pink
Basement membrane ^B	Pink

^ASpecial staining procedure used for their demonstration, such as one containing resorcin-fuchsin or orcein.

^BSpecial staining procedure used for their demonstration, such as silver impregnation or periodic acid-Schiff (PAS) stain.