



## Microwave protocol Vs. conventional protocol:

- Microwave oven specially designed for tissue processing (dehydration and clearing ) are now common.
- The microwave shortness time of processes from hours to minutes.
- Microwave stimulate the diffusion of solutions into the tissue by increasing internal heat of the specimens thus accelerate the reaction (temperature 45 C).
- Reagents (solutions) used for microwave processing includes ethanol , isopropanol , and mixture of alcohol and paraffin ( Graded of concentration of solution not required).
- Clearing agent (Xylene ) not necessary because the temperature of the paraffin facilitate evaporate of alcohol.
- Xylene and formalin not used in this process (to eliminate toxic and carcinogenic ).
- Process of microwave :
  - Absolut alcohol 15 min.
  - Chloroform 15 min .
  - Paraffin 15 min.

## Hematoxylin & eosin (H&E)

It is the first stain applied to the tissue sections and give diagnostic information in most cases.

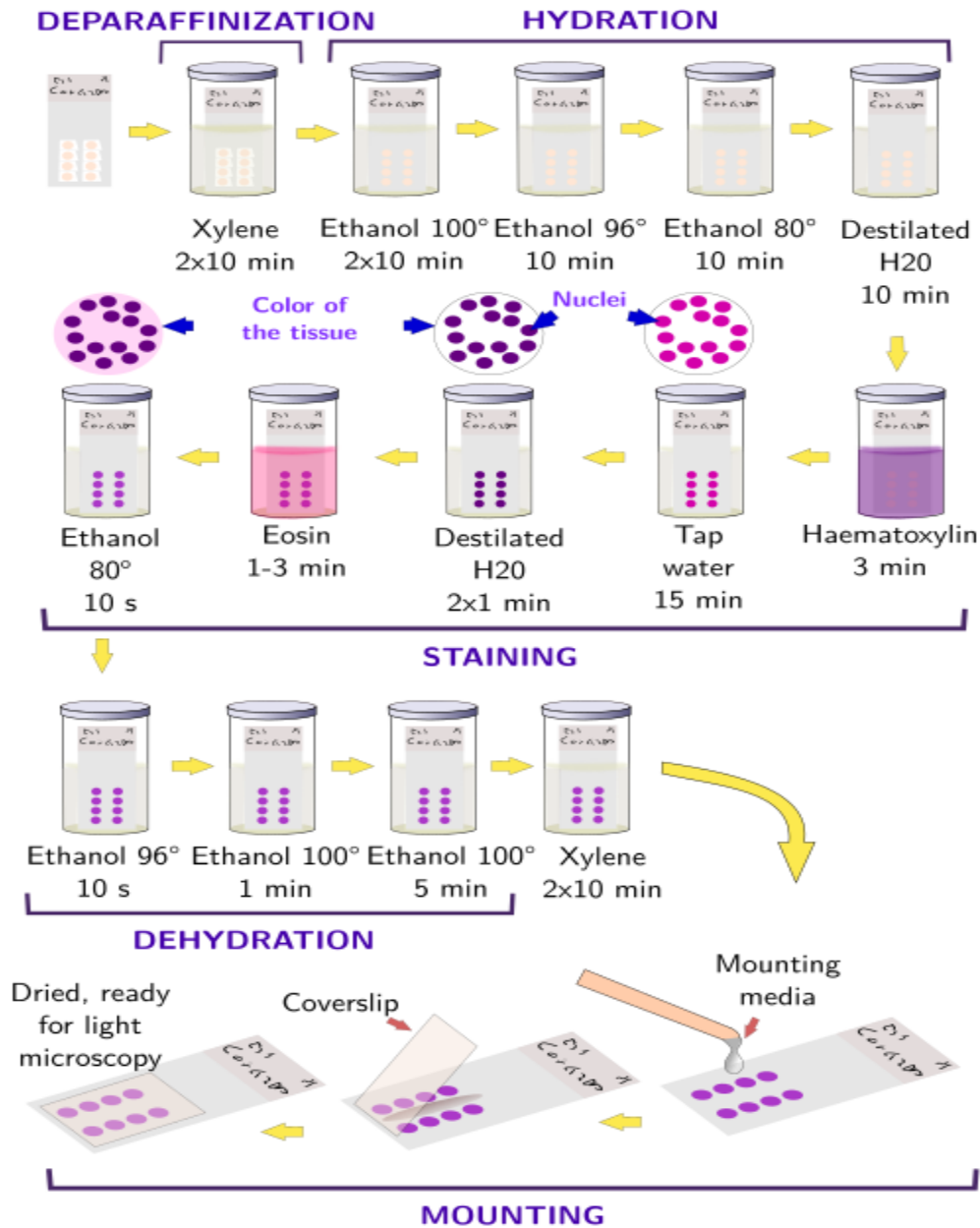
Hematoxylin & eosin (H&E) is the most common dye combination.

Hematoxylin – basic like dye which stains acid molecules (blue)

i.e. Nucleic acids

Eosin - acidic dye which stains basic molecules (pink)

Cytoplasm (proteins)Material stained with eosin





## Special stain

Special stain are used to identify certain normal and abnormal substance present in the cells and tissue, which can not be identified on routine Haematoxylene & Eosin staining or are better appreciated on special stain.

### **1. Periodic acid – Schiff (Pas stain):**

#### **Used**

glycogen and mucopolysccharide.

In diagnosis of poorly differentiated adenocarcinoma of various tissue like stomach, pancreas, lung.

**Results** \_\_\_\_\_ PAS : positive substance (bright pink).

pink .

### **2. Prussian blue :**

**Used** \_\_\_\_\_ iron and bile pigment.

**Results** \_\_\_\_\_ appear Blue (Prussian blue )and Cytoplasm red to pink and macrophage engulf stain brown.

### **3.Congo red :**

**Used** \_\_\_\_\_ amyloid.

**Results** \_\_\_\_\_ appear red .

### **4. Sudan black / oil red O:**

**Used** \_\_\_\_\_ fat.

**Results** \_\_\_\_\_ sudan lack (fat is black – nuclei red ) and oil O (fat is bright red – nuclei blue ).



**5. Van Gieson :**

Used \_\_\_\_\_ collagen .

**Results** \_\_\_\_\_ collagen is red .

Nuclei is blue.

Other tissue is yellow.

**6. Reticulin :**

Used \_\_\_\_\_ reticulin fiber

**Results** \_\_\_\_\_ reticulin is black .

Nuclei is colorless .

Collagen is brown .

**7. methy violet:**

Used \_\_\_\_\_ amyloid in tissue .

**Results** \_\_\_\_\_ metachromatic positive tissue : red to violet .

**8. Ziehl Neelsen stain :**

Used \_\_\_\_\_ mycobacterium bacilli in tissue suffered from Tuberculosis (T.B.)

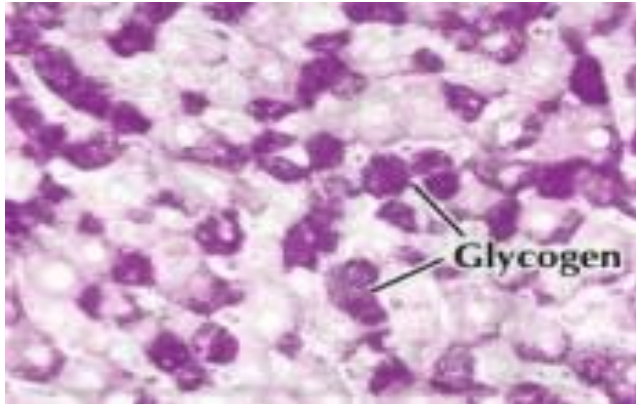
**Results** \_\_\_\_\_ bacilli red in colure straight or slightly curved

**9. Giemsa stain :**

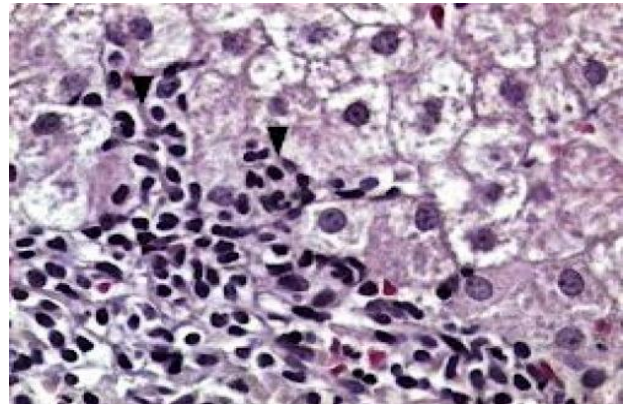
Used \_\_\_\_\_ diagnosis blood parasite

**10. horse radish peroxidase :**

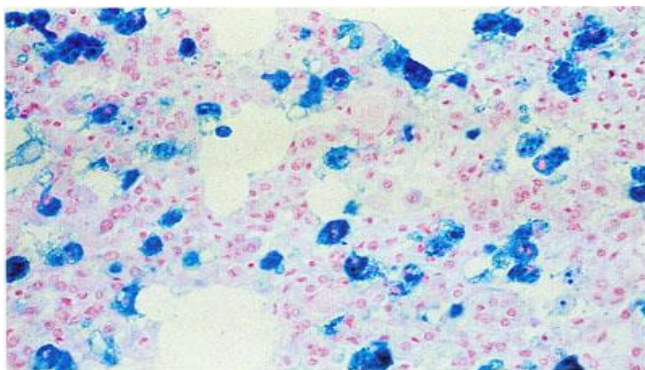
Used \_\_\_\_\_ diagnosis Ag – Ab complex



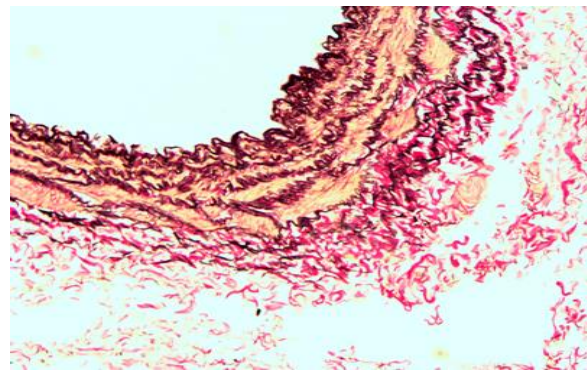
PAS stain



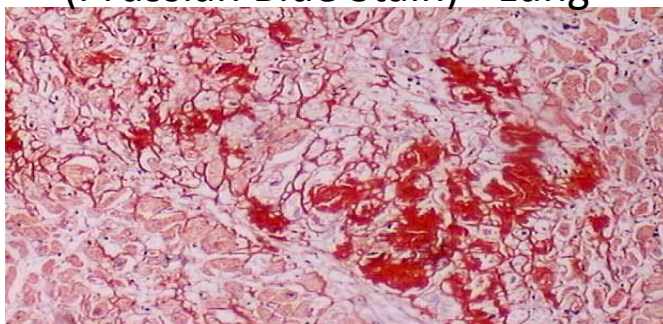
Sudan black



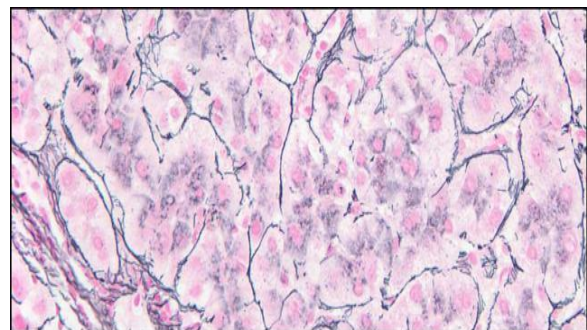
Chronic Passive Congestion  
(Prussian Blue Stain) - Lung



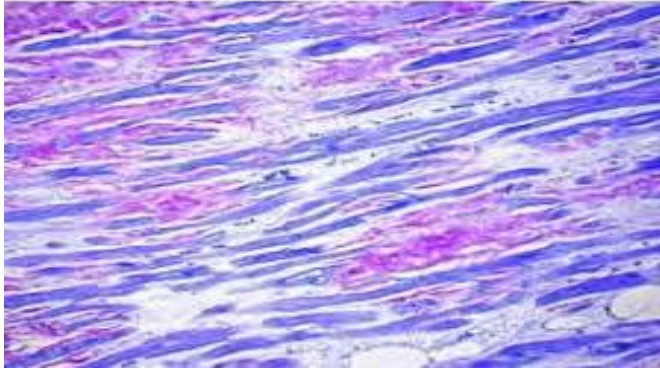
Van Gieson stain



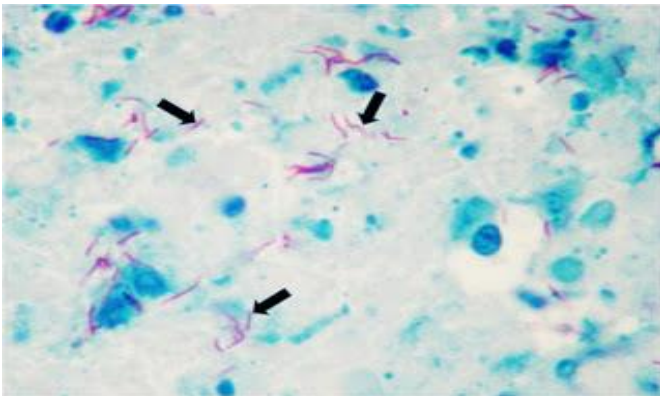
**Amyloid** : Red to Pink  
**Nucleus** : Blue  
Congo red stain



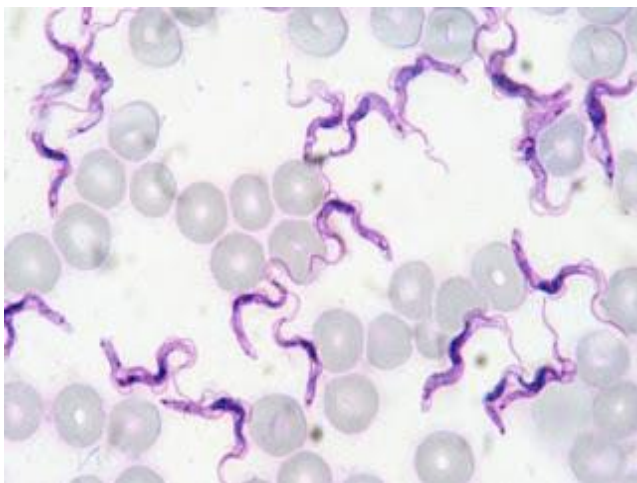
This is a reticulin stain of a liver biopsy



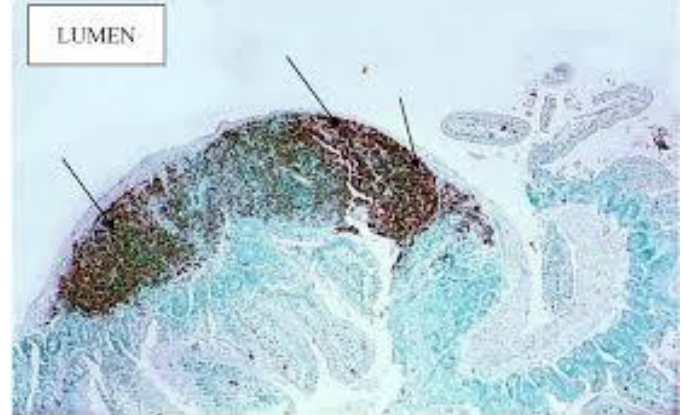
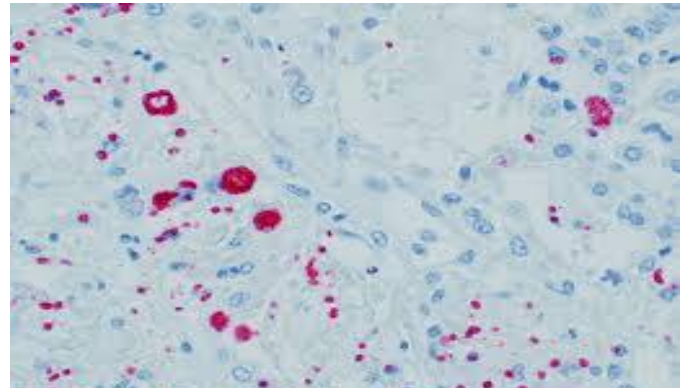
Methyl violet



Pink tubercle bacilli  
**Ziehl Neelsen stain**



Giemsa stain



**horse radish peroxidase for  
diagnosis Ag – Ab complex .**