

- **Good fixative is most important factors in the production of satisfactory results in histopathology.**
- **Following factors are important:**
- **Fresh tissue**
- **Proper penetration of tissue by fixatives**
- **Correct choice of fixatives**

# Aims of Fixation

- 1. It should prevent autolysis & putrefaction of the cell.
- 2. It should penetrate evenly and rapidly.
- 3. It should harden the tissues
- 4. Increase the optical differentiation of cells & tissues
- 5. Should not cause shrinkage or swelling of the cells
- 6. Must not react with the receptor sites & thus must not interfere with the staining procedure.
- 7. It must be cheap and easily available.

# CLASSIFICATION OF FIXATIVES

Based on mode of action

## COMPOUND FIXATIVES

### Micro anatomical

- **10% formol saline**
- **10% neutral buffered formalin**
- **Zenkers solution**
- **Bouin's solution**
- **Rossman's fluid**
- **Formol calcium**

### Cytological

- **1. Nuclear fixatives**
  - **glacial acetic a - affinity for nuclear chromatin.**
  - **pH  $\leq$  4.6**
    - **Flemming's**
    - **Carnoy's**
    - **Newcomer's**
    - **Clarke's**
- **2. Cytoplasmic fixatives**
  - **glacial acetic a - destroys mitochondria and Golgi.**
  - **pH  $\geq$  4.6.**
    - **Kelly flemmings**
    - **Regauds's fluid**
    - **Orth's fluid**

### Histochemical

- **Formol saline 10%**
- **Absolute ethyl alcohol**
- **Acetone**

# TYPES OF FIXATION

- Three types of fixation

## *Heat fixation*



## *Perfusion*



## *Immersion*



# DEFINITION

## **Fixation:**

“A process by which the constituents of the cells or tissues are fixed in a physical and chemical state so that they will withstand subsequent treatment with various reagents with a minimum loss, distortion or decomposition.”

## **Fixative (Dorland's):**

“A fluid, often a mixture of several reactive chemicals, into which histological or cytological specimens are placed so that, by processes such as denaturation and cross-linking of proteins, autolysis is prevented, the specimen is hardened to withstand further processing and the specimen is preserved in a close facsimile of the living state in regard to both cellular morphology and the location of sub cellular constituents.”