**Title:** Preparation of Squamous Epithelial Cell (Fixation and Staining)

**Objective:** To prepare and observe squamous epithelial cells by fixation and staining, enabling the study of their structure under a microscope.

**Introduction:** Squamous epithelial cells are thin, flat cells found in various body tissues, including the lining of the oral cavity. Fixation preserves the cells, while staining enhances the visibility of cellular components, such as the nucleus and cytoplasm, under a microscope. This experiment demonstrates the proper technique for obtaining, fixing, and staining these cells for microscopic observation.

**Materials Required:**

1. Clean coverslip
2. Glass slides and cover slips
3. Distilled water
4. Ethanol (fixative)
5. Leishman's stain solution
6. Droppers and pipettes
7. Compound light microscope
8. Tissue paper
9. Forceps

**Procedure:**

1. **Collection of Epithelial Cells:**
    - Gently scrape the inner lining of the cheek using a clean coverslip.
    - Transfer the collected cells onto a clean glass slide by smearing them evenly.
2. **Fixation:**
    - Allow the smear to air dry for a few seconds.
    - Add a few drops of ethanol and leave it for 2–3 minutes to fix the cells.
    - Drain off the fixative and allow the slide to dry completely.
3. **Staining:**
    - Add Leishman's stain solution to the fixed smear.
    - Leave it for about 1–2 minutes to allow proper staining.
4. **Mounting:**
    - Place a clean cover slip over the stained smear to avoid air bubbles.
    - Press gently to ensure the sample is evenly spread.
5. **Microscopic Observation:**
    - Place the slide on the microscope stage.
    - Start with the low-power objective (10x) to locate the cells.
    - Switch to high-power objective (40x) for detailed observation of cell structure.
    - Observe and note the squamous epithelial cells' size, shape, and stained components.

**Observations:**

- The squamous epithelial cells appear polygonal or irregular in shape.
- The nucleus is clearly visible as a dark-stained structure.
- The cytoplasm is lightly stained with Leishman’s stain.

**Discussion:** This experiment successfully demonstrated the collection, fixation, and staining of squamous epithelial cells. Fixation helps preserve cellular structure, while staining enhances contrast, making cellular components more distinguishable under a microscope. Leishman's stain specifically highlights the nucleus and cytoplasmic details, making it useful for cytological studies.

**Conclusion:** The prepared epithelial cell smear provided clear microscopic visibility of cellular details. The fixation and staining techniques applied in this experiment are fundamental for cytological studies.

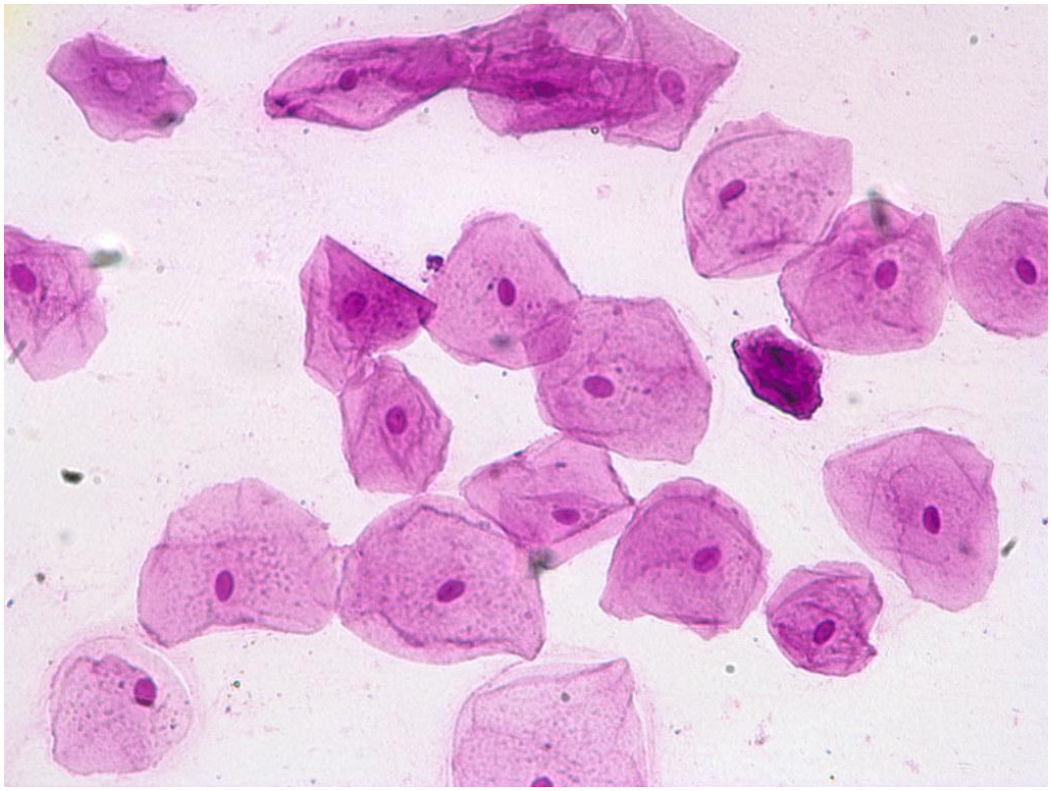

*Figure 1: Squamous epithelium cells collected from the inner lining of human mouth.*