



KOH Procedure

PRINCIPLE

This is a rapid method for observing fungal elements from skin scrapings, hair or nails. KOH (Potassium hydroxide) digests cellular elements other than fungi very rapidly, thus clearing the specimen and leaving fungal elements clearly visible.

SCOPE

All Medical Technologists and Laboratory Medical Technicians working at the Medical Office Laboratories

SPECIMEN REQUIREMENTS and SPECIMEN STABILITY

- See Microbiology Specimen Collection Guidelines on the Lab website under the provider resources tab.
- Collection is performed in the patient care areas and delivered to the laboratory.

EQUIPMENT, MATERIALS AND REAGENTS

- Glass Slides
- 10% aqueous KOH (ampules) – Onelink number: 10229733
- Glass coverslips
- Disposable plastic pipettes
- Microscope

CALIBRATION

None

QUALITY CONTROL

None

PROCEDURE

1. Place the specimen in the center of a clean microscope slide if it was not submitted on a slide.
2. Add 1 drop of 10% KOH to the specimen and mix gently.
3. Place a coverslip over the preparation and press down gently on the coverslip.
4. Allow to stand at room temperature until the specimen has cleared (5-10 minutes).
The KOH will clear the other cellular material leaving fungal elements visible.

NOTE: Additional time may be necessary if clearing is not complete. The dissolving process may be accelerated by placing the slide at 35⁰C (incubator temperature) until clearing is complete.

5. Examine the slide under low per (10X) and reduce the light (or phase contrast).

INTERPRETATION:

1. Yeast and Hyphae will be refractile and stain gray.
2. Look for budding on yeast cells to help differentiate from oil droplets. Hyphae will have parallel walls and may have cross walls.
3. Artifacts may be present. Oil droplets, air bubbles, hair, cotton fibers, KOH crystals and elastic fibers need to be differentiated from fungal elements.

RESULTS AND REPORTING

1. Results are entered in the "ARE" application of the LIS.
2. Result as
 - a. No Fungus Seen
 - b. Yeast Observed
 - c. Hyphae Observed
3. Perform and Verify.

REFERENCE RANGES

No Fungus Seen

NOTES AND LIMITATIONS

1. The Clinical specimen clears as it dissolves. Even fungi will eventually be destroyed in KOH preparations, so this technique does not result in a permanent preparation.
2. Hyaline fungi can be difficult to see if the illumination is improperly adjusted.
3. Observe Universal Precautions with vaginal specimens. Observe good laboratory technique with all specimens and reagents.
4. Reagents must be used within the expiration date.
5. Cotton swabs should not be used in slide preparations as the cotton strands may resemble hyphae.

REFERENCES

Larone, Davise: Medically Important Fungi, 4th Edition, Elsevier Publishing, New York, NY, 2002.

Manufacturer Package Insert: Bactidrop Potassium Hydroxide (10%), Remel, Lenexa, KS, Revised 10/01/04.

Murray et all, Manual of Clinical Microbiology, 8th Ed, American Society of Microbiology, Washington, D.C., 2003.