Bacillus anthracis

Colony Morphology

- Grows well on Blood Agar (BA); will not grow on MacConkey (MAC) agar
- 2-5 mm on BA at 24 h
- Flat or slightly convex with irregular borders that have comma-shaped protrusions
- Colonies have a ground-glass appearance
- Non-hemolytic on BA
- Tenacious colonies

Gram Stain

- Large gram-positive rod (1-1.5 x 3-5 μm)
- Long chains in liquid culture but may include single cells or short chains
- Spores are subterminal or central

Additional Information

- Can be misidentified as: *Bacillus megaterium* and other *Bacillus* spp.
- Biosafety Level 2 agent (Use BSL3 for large volume or high titer culture)
- Infectious Dose: <10,000 spores
- Transmission: Inhalation, ingestion, direct contact with skin
- Contagious: No

Acceptable Specimen Types

- Swab of vesicular fluid from cutaneous lesion
- Sputum (≥ 1 ml)
- Whole blood: 5-10ml blood in EDTA, and/or Inoculated blood culture bottle
- Stool (> 5g)

24 h growth on BA

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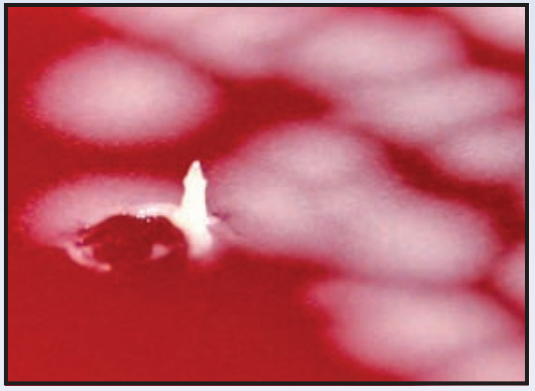
Comma-shaped colonies

‡

Gram stain



Tenacity on BA

Sentinel Laboratory Rule-Out of *Bacillus anthracis*

Grey, ground-glass,
tenacious colonies at 24 h on BA at 35/37°C
Non-hemolytic on BA

↓

Large gram-positive rods
(chaining in liquid culture)

↓

Perform all additional work in a certified Class II Biosafety Cabinet

*Motility: Non-Motile
(use semi-solid media rather than wet mount; 2,3,5-triphenyltetrazolium chloride indicator)
*Catalase: Positive

*Motility and Catalase: Appearances of test results are not agent-specific. Photos represent typical reactions

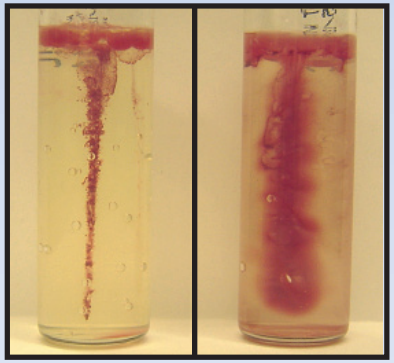
↙ ↘

No → Continue laboratory identification procedures

Yes → Immediately notify and call the HI State -BT Response Lab @ 368-3373 or pager # 691-4014.

B. anthracis colonies at 24 h on BA

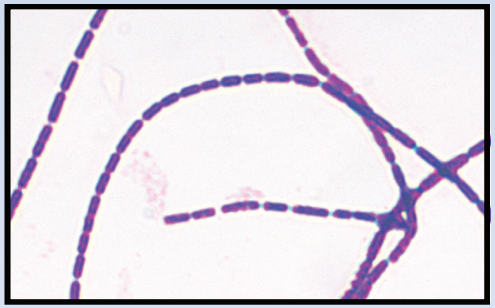
Motility



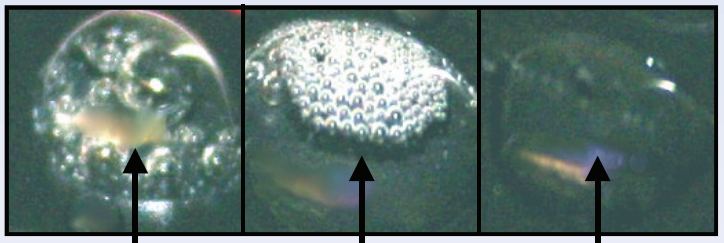
Non-Motile Motile

Gram stain

‡



Catalase



Positive Weak Positive Negative

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