

## Lab.12. Gram – positive rods

### *Bacillus* spp.

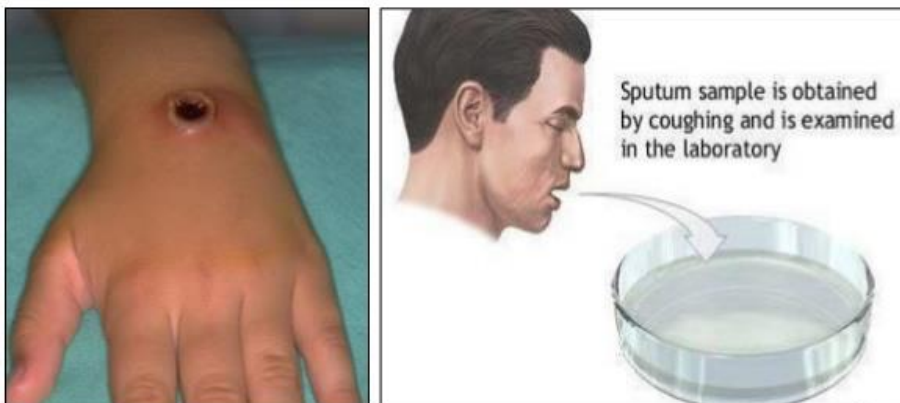
- Gram-positive rods (at least early in growth), in singles or chains
- Aerobic or facultative anaerobic
- Produces endospores aerobically; spore shape and position are variable
- Most are catalase-positive
- Most are motile
- Most are soil saprophytes
- pathogens are *B. anthracis* (anthrax) and *B. cereus* (food poisoning and opportunistic infections)



### *Bacillus anthracis*

#### Specimens

- Dermal lesions
- Sputum



**Culture**

Blood agar ( non – haemolytic )



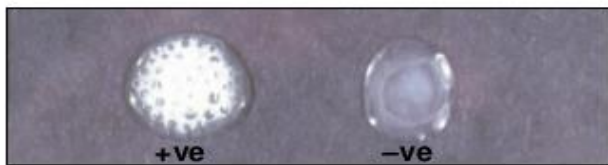
Irregular, round, raised, dull, opaque, greyish white colonies with a frosted glass appearance



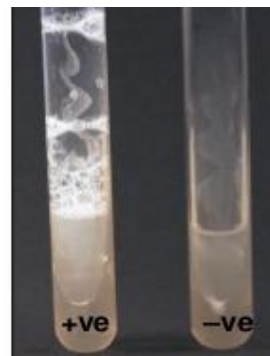
Encapsulation test for Bacillus anthracis. The difference in appearance of colonies on bicarbonate agar (smooth colonies on the left) and rough colonies (sheep blood agar on the right) is indicative of capsule.

**Biochemical testing:**

- **Catalase +ve** (for rapid differentiation from Clostridium spp.)



Slide catalase test



Tube catalase test

- **Gelatin liquefaction**



A gelatinase-positive (+ve) organism is above, and a gelatinase-negative (-ve) organism is below.

***Bacillus cereus***

**Specimens:** stool, vomitus, food, blood.

**Culture:** Blood agar ( $\beta$ - haemolytic ) , colonies both cream to white or grey and have a slight green tinge

isolate *B. cereus* from **feces** & other sources.

