Vibrio spp.

- Species
- Morphology and Staining
- Cultural Characteristics
- Biochemical Reactions
- Diseases
- Diagnosis

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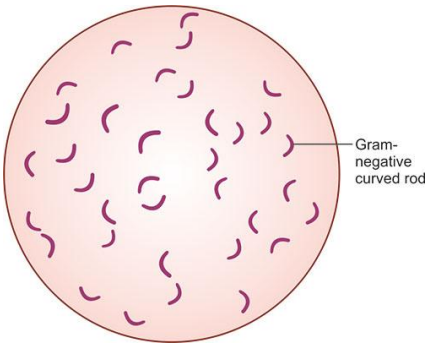
Species

Vibrio cholera

Vibrio paraheamolyticus



Morphology and Staining

The most important member of the genus is *V. cholerae*

- Gram-negative - curved bacilli or comma-shaped.
- About 1.5 x 0.2 - 0.4 µm in size.
- Highly motile – a single sheathed polar flagellum.
- Non-spore forming and non capsulated.

Morphology and Staining

Vibrio cholerae

Cultural Characteristics

- Vibrio cholerae is a facultative anaerobic organism. It grows within a temperature range of 16 - 40°C and the optimum growth is at 37°C, and the growth is better in an alkaline medium. The range of pH is 6.4 - 9.6,, and the optimum is 8.2.
- It grows well in ordinary media (N.A – Blood Agar –MacConky agar) .
- The widely used media are TCBS and Alkaline Peptone water .

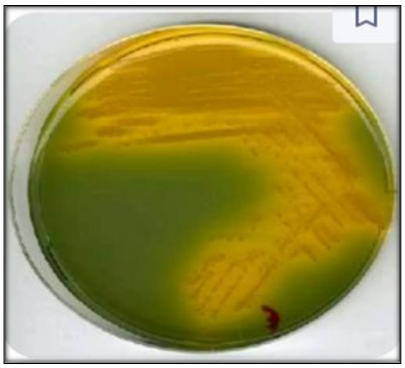
Cultural Characteristics

- TCBS Agar

Is the preferred selective medium for isolation and identification .

V. cholerae grows well on Thiosulfate Citrate Bile Sucrose agar (TCBS), on which produces **yellow colonies** (due to sucrose fermentation) that are readily visible against the dark green background of the agar.

Cultural Characteristics



V . Cholerae on TCBS Agar

Biochemical tests

Cholera red reaction:

- This reaction is performed by adding a pure sulphuric acid drop to a 24h peptone water culture of the bacteria. If positive, a red coloration appears almost immediately. This reaction depends on the production of indole and nitrites, and the reddish color develops due to the formation of nitroso-indole.
- Catalase and oxidase tests + ve.
- Urease test –ve.

Biochemical tests

- Carbohydrates metabolism : is fermantive producing acid but no gas.
- *V . Cholerae* ferments all sugars except lactose, arabinose and inositol.

Diseases

Cholerae

- It is an infection of the small intestine caused by *V. cholerae*
- The main symptoms are watery diarrhea and vomiting.
- This may result in dehydration and severe grayish-bluish skin.

Transmission: occurs primarily by drinking water or eating food that has been contaminated with feces of an infected person, including one with no apparent symptoms.

Diagnosis

- Stool Culture – Use Cary Blair Transport media viable for many days at room temperature
- Use TCBS media for culture
- Use cholerae rapid test

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