

3.1. *Vibrio cholerae* and cholera

3.1.1. *V. cholerae*

Vibrio cholerae is a Gram-negative, comma-shaped bacterium with a single polar flagellum. It is a member of the family Vibrionaceae and the genus *Vibrio*. The bacterium is highly motile and can survive in both aquatic and terrestrial environments. *V. cholerae* is the causative agent of cholera, a severe diarrheal disease. The bacterium is characterized by its ability to produce cholera toxin (CT), which is responsible for the watery stools associated with the disease. *V. cholerae* is highly contagious and can spread through contaminated water and food. The bacterium is also known for its ability to form biofilms, which allows it to persist in the environment for long periods. *V. cholerae* is a major public health concern, particularly in developing countries where access to clean water and sanitation is limited. The bacterium is highly adaptable and can evolve rapidly, leading to the emergence of new strains with increased virulence and resistance to antibiotics. *V. cholerae* is a facultative anaerobe and can grow in a wide range of temperatures, from 5°C to 42°C. The bacterium is highly sensitive to desiccation and can survive in a dormant state for several months. *V. cholerae* is a major cause of mortality and morbidity in many parts of the world, particularly in South and Central America, Africa, and Asia. The bacterium is highly contagious and can spread through contaminated water and food. The bacterium is also known for its ability to form biofilms, which allows it to persist in the environment for long periods. *V. cholerae* is a major public health concern, particularly in developing countries where access to clean water and sanitation is limited. The bacterium is highly adaptable and can evolve rapidly, leading to the emergence of new strains with increased virulence and resistance to antibiotics. *V. cholerae* is a facultative anaerobe and can grow in a wide range of temperatures, from 5°C to 42°C. The bacterium is highly sensitive to desiccation and can survive in a dormant state for several months. *V. cholerae* is a major cause of mortality and morbidity in many parts of the world, particularly in South and Central America, Africa, and Asia.

3.1.2. Cholera

Cholera is an acute diarrheal illness caused by infection of the intestine with *Vibrio cholerae*. The disease is characterized by watery stools, vomiting, and dehydration. Cholera is highly contagious and can spread through contaminated water and food. The bacterium is also known for its ability to form biofilms, which allows it to persist in the environment for long periods. Cholera is a major public health concern, particularly in developing countries where access to clean water and sanitation is limited. The disease is highly contagious and can spread through contaminated water and food. The bacterium is also known for its ability to form biofilms, which allows it to persist in the environment for long periods. Cholera is a major public health concern, particularly in developing countries where access to clean water and sanitation is limited.

