

Hemophilus

General characteristics:

Gram stain: pleomorphic, gram-negative rod to gram-negative coccobacilli. They require growth factors provided by blood: **X and V factor**.

X factor is heat stable tetrapyrrole compounds such as hemin or hemoglobin.

V factor is heat labile NAD (coenzyme I) or NADP (coenzyme II).

Both factors are found in blood, but need heat to break down RBCs and release factors, so chocolate agar is used for the recovery of Hemophilus. Hemolysis should be checked on horse or rabbit blood agar.

Porphyrim test:

X-independent Hemophilus excrete porphyrins, (positive result indicates that the organism does not need factor X).

Hemophilus influenzae:

H. influenzae is found on the mucous membranes of the upper respiratory tract in human. It's an important cause of **meningitis** in children and occasionally causes respiratory tract infection in children and adult.

Specimens:

Specimens consist of nasopharyngeal swabs, blood, pus and spinal fluid for smears and cultures.

Culture:

On chocolate agar, flat, greyish-brown colonies with diameters of 1-2 mm are present after 24 hours of incubation.

Disease:

- **H. influenzae** causes following diseases:-

Pharyngitis, epiglottitis, otitis, sinusitis, bacteremia, meningitis, urethritis, maternal-neonatal infection.

Most **H. influenzae** Infection occur in **children 1 month to 5 years old**, the majority of systemic infections are **caused by serotype b**.

- **Hemophilus parainfluenzae** causes Diseases: endocarditis, urethral, maternal-neonatal infections.
- **Hemophilus aegypticus** causes conjunctivitis, Barzilian purpic fever.
- **Hemophilus ducreyi** causes chancroid, a highly contagious sexually transmitted disease.
- **H. hemolyticus, H. parahemolyticus, H. aphrophilus, H. paraphrophilus and H. segnis** are mostly found as normal flora and rarely cause disease.