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***Pasteurella***

**Characteristics**

*Pasteurella* species are spherical, ovoid or rod-shaped cells 0.3-1.0μm in diameter and 1.0-2.0μm in length. Cells are Gram negative, and occur singly, or in pairs or short chains. Bipolar staining may be seen and capsules may be present. All species are non-motile, and are facultatively anaerobic.

*Pasteurella* species have both an oxidative and fermentative metabolism. The optimum growth temperature is 37°C. Glucose and other carbohydrates are catabolised with the production of acid but no gas. Most species are catalase positive and oxidase positive; nitrates are reduced to nitrites by almost all species.

Colonies of *Pasteurella* species are usually grey and viscous, with a strong mucinous odour resembling *Haemophilus influenzae*. On chocolate agar, colonies are round, greyish or yellowish, and nearly 2mm in diameter after 48hr. Rough, irregular colonies may also occur. There is no haemolysis on blood agar.

It is a gram-negative organism and, in fresh cultures and animal tissues, gives typical bipolar staining, particularly with Leishman or methylene blue stain

*Pasteurella* species are generally susceptible to chloramphenicol, penicillin, tetracycline, and the macrolides. *Pasteurella* species have been isolated from infected bite wounds and abscesses, pus, bronchial secretion, CSF, and blood.

• Pasteurellosis is a bacterial disease that can be a cause of nasal or sinus infections, ear or eye infections, pneumonia, or abscesses in bone, joints, or internal organs in rabbits.

• Often, pasteurella occurs with other bacteria, simultaneously causing infection.

• Transmission of Pasteurella may be by direct contact, through the air or contaminated cages, litter, food bowls, etc. Most rabbits are infected at birth from mother rabbits.

• Pasteurella colonizes the nasal cavity and upper respiratory tract, but many do not show symptoms as long as the immune system is functioning normally.

• Most infections begin in the nose. Infection may then spread into the sinuses and bones of the face and/or spread via the eustachian tubes to the ears, via the nasolacrimal duct to the eye, via the trachea to the lower respiratory tract, and via the blood stream to joints, bones, and other organ systems.

• Several outcomes of infection are possible, including (1) elimination of infection, (2) chronic infection, where the bacteria live in the nasal cavity without causing symptoms, (3) development of symptoms that improve with antibiotic therapy and recur following discontinuation of therapy, or (4) long-standing, progressive disease.

**Growth characteristics and colony morphology**

*P. multocida* grows in most common laboratory media such as nutrient agar. Special media such as

dextrose-starch agar and casein-sucrose-yeast (CSY) medium support an growth. Blood agar and CSY agar with 5% blood (bovine, sheep) are convenient media for routine laboratory culture. The optimum growth temperature is 35-37°C. In enriched media at 37°C, colonies 1-3 mm in diameter are produced after 18-24 hours culture. The organism shows different types of colonies, which are related to the capsular type. Capsular type A produces the largest colonies, which are translucent, greyish in colour, and mucoid . There may be considerable variation in colony size, ranging from rounded, convex, discrete colonies with circular edges to large watery colonies with flowing margins. In thistype of colony, the capsules consist, in part, of hyaluronic acid. Occasionally, type D strains may also produce mucoid colonies. Colonies of capsular types D and F and the rounded colonies of type A display a pearl-like iridescence in oblique transmitted light. Colonies of types B and E may also vary in size, depending on the degree of capsulation. They will range from larger greyish colonies, when freshly isolated or when grown in media containing blood serum, to smaller colonies that give a yellowish-green or bluishgreen iridescence when viewed in transmitted light.

