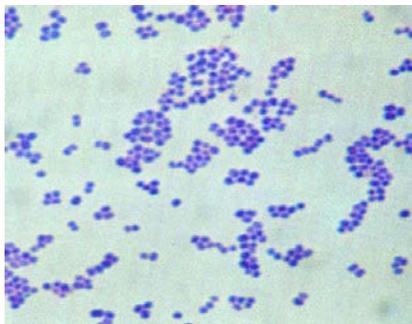


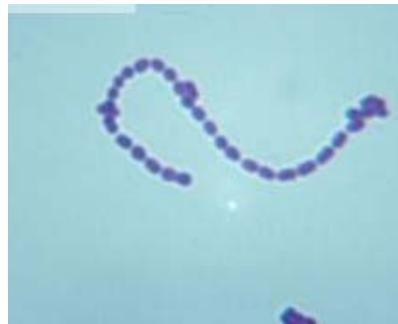
MORPHOLOGICAL STUDIES ON BACTERIA OF VETERINARY IMPORTANCE

Staphylococcus aureus

- Gram positive, Spherical cocci .
- Measuring 0.8 to 1.0 μm in diameter.
- Arranged characteristically in 'Grape like' clusters. Cluster formation is due to cell division occurring in more than one plane with daughter cells remaining closer together.
- Non-spore forming,
- Non-motile,
- Non-capsulated (Exceptions rare strains)



Staphylococcus aureus



Streptococcus pyogenes

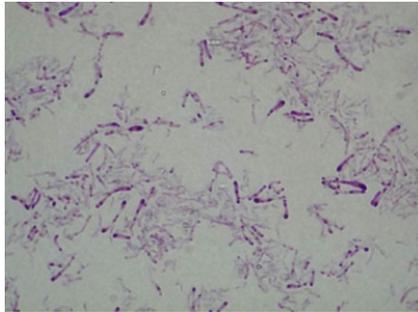
Streptococcus pyogenes

- Gram-positive cocci (In older cultures decolorized).
- *Streptococcus pyogenes* is a coccus 0.5 μm to 1 μm in size arranged in chains, chains made up of many diplococci. (Division in one plane.)
- Chains are shorter in artificial medium.
- Length of chain is increased by the presence of specific antibodies and is decreased in the absence of abs.
- Non-motile, Non- sporulating.
- Capsule producing strain - *Streptococcus epidemicus*.

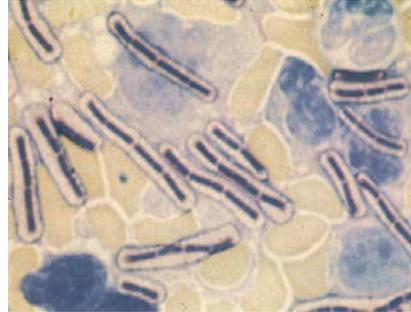
Corynebacterium bovis

- Gram-positive slender rods with a tendency to clubbing at one or both ends;
- Non-sporing,
- Non-motile,
- Non-capsulated,
- Non-acid fast,
- The granules are more strongly Gram positive than the rest of the bacterial cell.
- Stained with Loeffler's methylene blue, the granules take up a reddish purple color and hence they are called metachromatic granules. They are called as **volutin or Babes Ernst Granules**, often situated at the poles of the bacilli and are called polar bodies.

- Special stains, such as Albert's, Neisser's and Ponder's have been devised for demonstrating the granules.
- Stained smears from animal tissues often reveal groups of cells in parallel (Palisades) or cells at sharp angles to each other (**Chinese letter** or Cuneiform arrangement).



Corynebacterium bovis



Bacillus anthracis

Bacillus anthracis

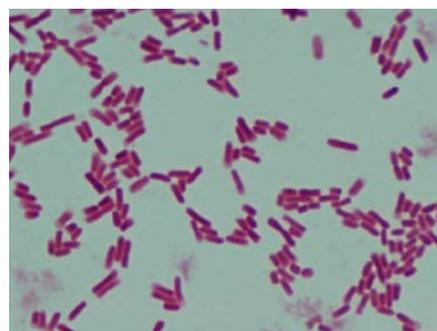
- Largest pathogenic Bacteria, 1-1.5 X4-8 u in size.
- Rod shaped bacilli with truncated ends , Arranged in chain 'Bamboo' like appearance
- Gram Positive,
- Non-motile,
- Capsulated(D-glutamic acid-polypeptide),
- McFadyeans reaction,
- Spore forming.

Pasteurella multocida

- Small coccoid rod .
- Measuring 0.25-0.4 u by 0.6-2.6u.
- Pleomorphic.
- Gram negative rods with characteristic '**Bipolar**' appearance in the stained smears.
- Possess capsule (Hyaluronic acid) when recently isolated from the disease process.On subculturing loses the capsule.
- Non-sporulating,
- Non-motile.



Pasteurella multocida



Escherichia coli

Escherichia coli

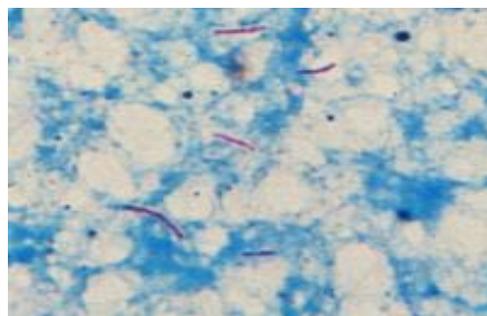
- Gram negative rods, measuring 1-3µm x 0.4-0.7µm in size varying from coccid bipolar to filamentous forms, occurs singly or in short chains.
- Fimbriae are present in 80% of the strains,
- Motile by means of peritrichous flagella,
- Non-capsulated, few extra-intestinal strains possess polysaccharide capsule,
- Non-spore forming.

Salmonella Pullorum

- Gram-negative short plump rods, measuring 0.4-0.6µm x 0.8-1.6µm in size.
- Occur singly or in short chains,
- Non-motile,
- Non-spore forming,
- Non-capsulated, Long filamentous forms occur.



Salmonella Pullorum



Mycobacterium tuberculosis

Mycobacterium tuberculosis

- *Mycobacterium tuberculosis*: Slender rod, 0.2-0.6µm X 1.5-4.0µm in size.
- Non-spore forming.
- Non-motile.
- Extremely pleomorphic.
- Acid fast (resist acid fast decolorization-due to waxy substances which prevents the ready absorption of dyes.)

Exercise

Q1. Prepare the smear stain with Gram's staining and write the shape, size, arrangement, and staining reaction of the given bacteria.
