



Description:

- *Micrococcus luteus* (*M. luteus*) is a Gram-positive to Gram-variable, non-motile, coccus, saprotrophic bacterium. It can form in tetrads or irregular clusters but not in chains and belongs to the family *Micrococcaceae*.
- *M. luteus* was first known as *Micrococcus lysodeikticus* and was discovered by Alexander Fleming in 1928.
- Its name stands for: microscopic (micro), of spherical shape (coccus), and yellow (luteus).

Interesting Facts:

- *M. luteus* is found in soil, dust, water, and in human skin flora. It has also been isolated from foods such as milk and goat's cheese.
- This bacterium is often arranged in circular tetrads and forms bright yellow colonies on nutrient agar.
- This bacterium can withstand massive doses of UV radiation and also has the ability to degrade pollutants such as petrol.
- *M. luteus* played an important part in Fleming's discovery of Lysozyme ('the body's natural antibiotic').
- *M. luteus* has the ability to show dormancy without forming spores. Unlike other actinobacteria, *M. luteus* expresses only one resuscitation-promoting factor required for emergence from dormancy, and has few other dormancy-related proteins.
- *M. luteus* causes odours in humans when breaking down the components of sweat.

Infection:

- *M. luteus* is considered an opportunistic pathogen that can be responsible for nosocomial infections.
- *M. luteus* can cause skin infections and is sometimes clinically mistaken for *Staphylococcus aureus*.
- This bacterium can be transmitted due to poor hand-washing practices.
- *M. luteus* can cause septic shock in immunocompromised people.

In the Lab / at Wickham Laboratories Ltd

- *M. luteus* is an atmospheric microorganism commonly found on environmental monitoring plates and it is one of the most common contaminants of lab cultures. It is often observed on agar plates from bioburden testing of pre-sterilisation medical devices.
- The distinct bright yellow organism can be fully identified using identification techniques such as MALDI-ToF (Matrix Assisted Laser Desorption Ionization-Time of Flight). It can commonly be mis-identified by eye as *Staphylococcus aureus* due to the golden / yellow colour so identification beyond colony morphology is required.
- Other distinguishing identification features are that *M. luteus* is urease & catalase positive but coagulase negative.
- Some *Micrococcus* species are now identified, particularly on newer identification techniques such as MALDI-ToF, as *Kocuria sp.* This is due to reclassification of some species of *Micrococcus*.
- Mannitol Salt Agar can be used to culture *Micrococcus spp* as it is selective for certain Gram-positive microorganisms. However, it will also allow growth of *Staphylococcus* so further identification work must be conducted to form a strong identification of *Micrococcus* presence.
- If *M. luteus* is a predominant micro organism found in laboratory, it can be included as a challenge organism for the quality control of in-house media manufacturing.

