# Fermentation Medium for Staphylococcus and Micrococcus M827

Fermentation Medium for Staphylococcus and Micrococcus is used for studying fermentation by *Staphylococcus* and *Micrococcus* species.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Casein enzymic hydrolysate | 10.000 |
| Yeast extract | 1.000 |
| Glucose | 10.000 |
| Bromo cresol purple | 0.040 |
| Agar | 2.200 |
| Final pH ( at 25°C) | 7.0±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Directions

Suspend 23.24 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense in tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Allow tubed medium to cool in an upright position.

## Principle And Interpretation

Several methods are available for differentiating Micrococcus and *Staphylococcus* species. These two are the most frequently encountered catalase-positive genera in the clinical laboratory. *Staphylococcus aureus* is a primary pathogen, which may be associated with severe infection. Micrococci are gram-positive organisms that are generally strict aerobes and can reduce nitrate. *Micrococcus luteus* oxidizes carbohydrates to $CO_2$ and water, and it does not produce acid from glucose anaerobically as well as it does not synthesize or possess arginine dihydrolase or ß-galactosidase. The defining characteristics of *Micrococcus* are its ability to aerobically produce acid from glucose, esculin hydrolysis, major pigment production, motility, and conversion of nitrate to nitrite (1). Fermentation Medium for Staphylococcus and Micrococcus is recommended for differentiation of these two organisms on the basis of fermentation reaction. *Staphylococcus* produces acid from glucose anaerobically whereas ! Micrococcus fails to do so (2). This test is performed in a manner similar to the oxidation fermentation tests for non-fermentative organisms.

Casein enzymic hydrolysate and yeast extract provide necessary nitrogenous nutrients for the organisms. Glucose is the fermentable carbohydrate source in the medium. Bromo cresol purple is the pH indicator. Incorporation of small amount of agar in this medium helps to create anaerobic condition in the depths of the tubes.

## Quality Control

**Appearance**
Light yellow to greenish yellow homogeneous free flowing powder

**Gelling**
Semisolid, comparable with 0.22% Agar gel.

**Colour and Clarity of prepared medium**
Purple coloured, clear to slightly opalescent gel forms in tubes as butts

**Reaction**
Reaction of 2.32% w/v aqueous solution at 25°C. pH : 7.0±0.2

**pH**
6.80-7.20

**Cultural Response**
M827: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organism | Inoculum (CFU) | Growth | Acid production |
|---|---|---|---|

| | | | |
|---|---|---|---|
| *Micrococcus luteus ATCC 10240* | 50-100 | good-luxuriant | negative reaction, no colour change |
| *Staphylococcus aureus ATCC 25923* | 50-100 | good-luxuriant | positive reaction, yellow colour |

## Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

## Reference

1. Smith K. J., Neafie R., Yeager J., and Skelton H. G., 1999, British Journal of Dermatology, Vol. 141, No. 3, British Association of Dermatologists, (558-561).
2. Finegold S. M. and Martin W. J., 1982, Bailey and Scotts Diagnostic Microbiology, 6th Ed., The C.V. Mosby Co., St. Louis.

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