Fermentation Medium for Staphylococcus and Micrococcus M827

Intended Use:

Recommended for studying fermentation by *Staphylococcus* and *Micrococcus* species.

Composition**

Ingredients	Gms / Litre
Tryptone	10.000
Yeast extract	1.000
Dextrose (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 purified / 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.

Tryptone 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.

Type of specimen

Clinical samples -Skin, Urine, Faeces samples and other specimens; Food samples; Water samples

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (2,3). For food samples, follow appropriate techniques for sample collection and processing as per guidelines (7).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(2)

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic use. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets

Limitations :

1. *Neisseria* species should be further confirmed by gram staining and oxidase test.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

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

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

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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