Fermentation Medium For Staphylococcus and Micrococcus, w/0.2% Agar

M827F

Intended Use:

Recommended for studying fermentation by *Staphylococcus* species in accordance with FDA BAM, 1998.

Composition**

Ingredients	Gms / Litre
Tryptone	10.000
Yeast extract	1.000
Dextrose (Glucose)	10.000
Bromocresol purple	0.040
Agar	2.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 23.04 grams in 1000 ml purified/distilled water. Heat to boiling to dissolve the medium completely. Dispense in tubes and sterilize by autoclaving at 10 lbs pressure (115°C) for 20 minutes. Allow tubed medium to cool in an upright position.

Principle And Interpretation

Fermentation Medium for Staphylococcus and Micrococcus, w/ 0.2% Agar is used for studying the fermentation characteristics of *Staphylococcus* species in accordance with FDA BAM, 1998 (2). Staphylococci and Micrococci are the most frequently encountered cocci in the clinical laboratory. Both are gram positive and catalase positive. Ability to ferment glucose has served as the basis for differentiating staphylococci from the micrococci that lacks the ability to ferment glucose (1). *Staphylococcus aureus* is a primary pathogen, which may be associated with severe infection. Micrococci are generally strict aerobes and can reduce nitrate. Fermentation Medium for *Staphylococcus* and *Micrococcus* is recommended for differentiation of these two organisms on the basis of glucose fermentation (3,6).

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

Food samples

Specimen Collection and Handling

According to the BAM protocol, total plate count of the suspected sample is carried out using Baird Parker Agar (M043). Suspected colonies of *S. aureus* are inoculated into Fermentation Medium for *Staphylococcus* and *Micrococcus*, w/ 0.2% Agar. Make sure that the inoculum reaches the bottom of the tube. Overlay the surface of agar with a 25mm layer of sterile paraffin oil. Incubate the tubes for 5 days at 37°C. Acid production is indicated by the change in colour of the medium to yellow, indicating presence of *S. aureus*. Run controls simultaneously.

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

Warning and Precautions

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 specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Due to nutritional variation certain strains may show poor growth.

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 0.2% Agar gel.

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

Reaction
Reaction of 2.3% 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 subsp. *aureus* ATCC 25923 (00034*)	50-100	good-luxuriant	positive reaction, yellow colour

Key : * - Corresponding WDCM numbers

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

Reference

1. Baker, J.S. 1984. Journal of clinical microbiology, 19(6): 875-879.
2. FDA, U.S. 1998. Bacteriological Analytical Manual. 8 ed. Gaithersburg, MD: AOAC International.
3. Finegold. and Baron. 1990. St. Louis.: The C.V. Mosby Co.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition
5. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
6. Smith, K. J., Neafie, R., Yeager, J. and Skelton, H. G 1999. British Journal of Dermatology, 141(3): 558- 561.

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