Modified MYP Agar Base

M1139

Modified MYP Agar Base is used for isolation and identification of *Bacillus* species and pathogenic Staphylococci.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Meat extract	1.000
D-Mannitol	10.000
Sodium chloride	10.000
Phenol red	0.025
Agar	12.000
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 43.02 grams in 900 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 55°C. Aseptically add rehydrated contents of 2 vials of sterile Polymyxin B Sulphate (FD003) solution to a final concentration of 100 units per ml and 100 ml sterile Egg Yolk Emulsion (FD045) per 1000 ml medium. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Bacillus cereus is ubiquitously present in soil, vegetation water and dust. It has been isolated from a large variety of foods, including vegetables, meat, cereals, pasteurized fresh milk and powdered milk (1, 2, 6) and processed foods. Under favourable conditions, the organism multiplies and causes gastrointestinal illness (6). It is implicated in two different forms of food poisoning; an emetic illness and a diarrhoeal illness. The emetic illness is mediated by a highly stable toxin that survives high temperature, exposure to trypsin, pepsin and pH extremes. The diarrhoeal illness is mediated by a heat and acid labile enterotoxin.

Lecithinase activity is the key reaction in the differential identification of *B.cereus* , the most commonly encountered and important species in clinical laboratories, from the majority of the other *Bacillus* species. If unknown isolate produces lecithinase, *Bacillus cereus* can be presumptively identified by also observing colonial morphology, hemolytic reactivity and motility tests. When present in large numbers in certain foodstuffs, *B. cereus* can produce metabolites responsible for the clinical symptoms of food poisoning (3). This medium differentiates *B.cereus* from other bacteria based on the basis of lecithinase activity, mannitol fermentation and resistance to polymyxin (FD003) (4, 5). Modified MYP Agar has similar composition to MYP Agar except agar concentration. Recently ISO Committee (9) has recommended Modified MYP Agar for detection of Staphylococci and Bacilli.

Modified MYP Agar Base contains peptic digest of animal tissue and meat extract, which provide nitrogen source. Mannitol fermentation can be detected by phenol red, which yields yellow colour to the mannitol fermenting colonies due to acid production. Added egg yolk emulsion helps in differentiation of lecithinase producing colonies, which are surrounded by a zone of white precipitate. Addition of Polymyxin B Sulphate (FD003) helps to restrict growth of gram-negative bacteria such as *Escherichia coli* and *Pseudomonas aeruginosa* . These differentiating media allow differentiation of *B.cereus* from other *Bacillus* species by its inability to ferment mannitol and poor sporulation. *B.cereus* dissimilates egg yolk and gives rise to typical bacilli form colonies with reddish zones and white halos. Acid produced by organisms other than *B.cereus* often diffuse through the medium, making it difficult to distinguish between mannitol fermenters and non-fermenters. So it is advised to transfer the suspected colonies to a fresh medium to visualize the true reaction.

Colonies from Modified MYP Agar Base are subcultured on Nutrient Agar and incubated at 30°C for 24 hours to observe/ determine vegetative cells, sporangium and spore morphology and lipid globules within vegetative cell.

Quality Control

Appearance
Light yellow to pinkish purple homogeneous free flowing powder

Gelling
Firm, comparable with 1.2% Agar gel

Colour and Clarity of prepared medium
Basal medium :Red coloured clear to slightly opalescent gel. After Addition of Egg Yolk Emulsion (FD045) : Light orange coloured opaque gel forms in Petri plates

Reaction
Reaction of 4.3% w/v aqueous solution at 25°C. pH : 7.1±0.2

pH
6.90-7.30

Cultural Response
Cultural characteristics observed with added Egg Yolk Emulsion (FD045)and Polymyxin B Sulphate(FD003) after an incubation at 32°C for 18-40 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony	Lecithinase activity
Cultural Response					
Bacillus cereus ATCC 10876	50-100	luxuriant	>=50%	red	positive, opaque zone around the colony
Bacillus subtilis ATCC 6633	50-100	luxuriant	>=50%	yellow	negative
Escherichia coli ATCC 25922	50-100	none-poor	<=10%		Negative
Proteus mirabilis ATCC 25933	50-100	luxuriant	>=50%	red	negative
Pseudomonas aeruginosa ATCC 27853	50-100	none-poor	<=10%		Negative
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=50%	yellow	positive, opaque zone around the colony

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

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