Technical Information

McClung Toabe MiVeg Agar Base

Product Code : VM1387

Application:- McClung Toabe MiVeg Agar Base is used for detection and isolation of Clostridium perfringens from foods.

Composition

Ingredients	Gms / Litre
MiVeg peptone No. 3	40.000
Dextrose	2.000
Disodium hydrogen phosphate	5.000
Monopotassium phosphate	1.000
Sodium chloride	2.000
Magnesium sulphate	0.100
Agar	25.000
Final pH (at 25°C)	7.6±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

McClung Toabe MiVeg Agar Base is prepared by using vegetable peptones instead of animal peptones, thereby making the media free from BSE/TSE risks. It serves the same purpose of McClung Tabe Agar Base (1) for isolating *Clostridium perfringens* from foods. *Clostridium perfringens* food poisoning is one of the most common type of human foodborne illness. The foods usually involved are cooked meat or poultry products containing large number of viable cells. The major symptoms of diarrhea in perfringens poisoning are induced by the heat-labile enterotoxin produced by sporulating cells only. Although the enterotoxin is not preformed in the food, the foods in which conditions are favourable for sporulation may contain enterotoxin (2). Therefore, there is a significant role of enumeration of these microorganisms in investigation of food borne illness (3). McClung and Toabe formulated this medium for isolation and differentiation of *Clostridium* species from foods on the basis of their lecithinase and lipase activity that can be visualized by addition of 50% egg yolk. MiVeg peptone No.3 present in the medium serve as a source of carbon, nitrogen, vitamins and minerals. Dextrose is the carbohydrate source. Sodium chloride maintains osmotic equilibrium of the medium. Magnesium sulphate supplies divalent cations and sulfate. Disodium hydrogen phosphate and monopotassium phosphate helps in maintaining pH balance and serve as a source of phosphates. Lecithinase producing clostridia, such as *Clostridium perfringens* , hydrolyze the lecithin and produce opaque halos of precipitation surrounding the slightly raised colonies. To test the food add 25 grams of sample in two tubes containing 25 ml Fluid Thioglycollate MiVeg Medium (VM1009) with inverted Durham's tubes. Incubation is carried out at 46°C for 4 -6 hours. Observe the growth and gas production and then streak it on McClung Toabe MiVeg Agar plates and incubate.

Methodology

Suspend 75.10 grams of powder media in 900 ml distilled water. Mix thoroughly. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add 100 ml of sterile Egg Yolk Emulsion (MS2045). Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

Cream to yellow Homogeneous Free flowing powder

Gelling

Firm, comparable with 2.5% Agar gel.

Colour and Clarity of prepared medium

Basal medium: Amber coloured solution clear to slightly opalescent gel.After addition of egg yolk emlusion : Yellow coloured opalescent gel forms in Petri plates

Reaction

Reaction of 7.51 % w/v aqueous solution pH: 7.6 ±0.2 at 25°C

pH range

7.40-7.80

Cultural Response/Characteristics

Cultural characteristics observed under anaerobic condition with added sterile Egg Yolk Emulsion (MS2045) after an incubation at 35 - 37°C fo r 24 - 48 hours.

Organisms (ATCC)	Inoculum (CFU)	Growth	Recovery	Lecithinase	Lipase activity
Clostridium perfringens ATCC 12919	50-100	luxuriant	>=70%	positive reaction, opaque zone around the colony	negative reaction, no irridescent sheen on the growth surface
Clostridium sporogenes ATCC 11437	50-100	luxuriant	>=70%	negative reaction	positive reaction, irridescent sheen on the growth surface
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=70%	positive reaction, opaque zone around the colony	positive reaction, irridescent sheen on the growth surface

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1.McClung, L.S., and R. Toabe, 1947. The egg yolk plate reaction for the presumptive diagnosis of Clostridium sporogenes and certain species of the gangrene and botulinum groups. J. Bact. 53:139. .
2.APHA. 2001. Compendium of Methods for the Microbiological Examination of Foods.F. P Downes and Ito K Ed. 4 ed. Washington, D.C.
3.FDA, U.S. 1998. Bacteriological Analytical Manual. 8 ed. Gaithersburg, MD: AOAC International.

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