Technical Information

MacConkey Sorbitol Agar (Sorbitol Agar)

Product Code: DM 1298

Application: - MacConkey Sorbitol Agar is used for isolation and identification of enteropathogenic Escherichia coli strains associated with infant diarrhea.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	17.000
Proteose peptone	3.000
D-Sorbitol	10.000
Bile salts mixture	1.500
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.001
Agar	13.500
Final pH (25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Composition of MacConkey Sorbitol Agar is based on the formulation detailed by Rappaport and Henigh [1]. This medium is recommended for isolation of enteropathogenic Escherichia coli O157: H7, which ferments lactose but fail to ferment sorbitol, hence produces colourless colonies. This organism has been found responsible for hemorrhagic colitis [2]. E.coli O157: H7 is a human pathogen associated with hemorrhagic colitis that results from the action of a shiga-like toxin (SLT) [5, 6].

MacConkey Sorbitol Agar however should not be solely used to detect pathogenic E.coli O157: H7 strains as some non-toxic strains may not ferment sorbitol [4].

On standard MacConkey Agar containing lactose, this strain is indistinguishable from other lactose-fermenting E.coli. In MacConkey Sorbitol Agar Base, lactose is replaced by sorbitol. Unlike most E.coli strains, E.coli O157:H7 ferments sorbitol slowly or not at all [3, 8]. The growth of E.coli O157:H7 on MacConkey Agar with Sorbitol shows colourless colonies and most of the fecal flora ferment sorbitol and appear pink. MacConkey Agar with Sorbitol therefore permits ready recognition of E.coli O157:H7 [5, 6, 7].

Peptic digest of animal tissue and proteose peptone supply necessary nutrients like nitrogenous and carbonaceous compounds, minerals, vitamins and trace ingredients for the growth of organisms. Crystal violet and bile salt mixture present in the medium inhibit growth of gram-positive bacteria. Sodium chloride maintains osmotic equilibrium. Neutral red is an indicator. D-Sorbitol is the fermentable carbohydrate.

Methodology

Suspend 50.03 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. AVOID OVERHEATING. Cool to 45-50°C and pour into sterile Petri plates

Quality Control

Physical Appearance
Light yellow to pink homogeneous free flowing powder
Gelling
Firm, comparable with 1.35% Agar gel
Colour and Clarity of prepared medium
Purplish red coloured clear to slightly opalescent gel forms in Petri plates
Reaction
Reactionof 5.0% w/v aqueous solution at 25°C.pH:-7.1±0.2
pH range 6.90-7.30
Cultural Response/ characteristics
DM 1298: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Escherichia coli O157:H7 NCTC 29900	50-100	luxuriant	>=50 %	colourless
Escherichia coli ATCC 25922	50-100	luxuriant	>=50 %	pink
Escherichia coli serotype O11 and O55	50-100	luxuriant	>=50 %	colourless
Salmonella Typhi ATCC 6539	50-100	luxuriant	>=50 %	pink
Shigella flexneri ATCC 12022	50-100	luxuriant	>=50 %	colourless

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° in sealable plastic bags for 2-5 days.

Further Reading

1. Rappaport F. and Henigh E., 1952, J. Clin. Pathol., 6 : 361.
2. Karmali M. A., Petric M., Lim C. et al, 1985, J. Infect. Dis.,151:775.
3. Sanderson M. W., Gay J. M., Hancock D. D., Gay C. C., Fox L. K. and Besser T. E., 1955, J. Clin. Microbiol., 33: 2616. 4.Pelczar M. J., Chan E. C. and Kreig M. R., 1986, Microbiology, 5th Ed., McGraw Hill Book Co., New York, 5.March S. B. and Ratnam S., 1986, J. Clin. Microbiol., 23:869.
6. Centre for Diseases Control, 1991, Morbid. Mortal, Weekly Rep 40:265.
7. Murray P. R., Baron J. H., Pfaller M. A., Tenover F. C. and Yolken R. H. (Ed.), 1999, Manual of Clinical Microbiology, 7th Ed. American Society for Microbiology, Washington, D. C.
8. Zadik J. M., Chapman P. A. and Siddons C. A., 1993, J. Med. Microbiol., 39:155.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.
- Do not use the products if it fails to meet specificatons for identity and performens parameters.