



MacConkey Sorbitol Agar Base w/ Rhamnose

M1727

MacConkey Sorbitol Agar Base w/Rhamnose is recommended for improved differentiation of *Escherichia coli* O157:H7 from background flora.

Composition**

Ingredients	Gms / Litre
Peptic Digest of Animal Tissue	20.000
Rhamnose	5.000
D-Sorbitol	10.000
Bile salts mixture	1.500
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.001
Agar	15.000
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 56.53 grams in 1000 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 45-50°C and aseptically add rehydrated contents of 2 vials of Cefixime Supplement (FD246). Mix well and pour into sterile Petri plates.

Principle And Interpretation

E.coli O157:H7 is a human pathogen associated with hemorrhagic colitis that results from the action of a shiga-like toxin (1,2). MacConkey agars are selective media and recommended as differential plating media for detection and isolation of coliforms from various samples clinical, dairy, food, water, pharmaceuticals etc.(3). Of different *E.coli* strains, *E.coli* O157:H7 which is a hemorrhagic strain does not ferment sorbitol or rhamnose (3,4). This biochemical feature aids in differentiating *E.coli* O157:H7 from other *E.coli* strains. Generally on standard MacConkey Agar medium containing lactose, this strain cannot be differentiated from other lactose fermenting *E.coli*. Rhamnose is often fermented by most sorbitol negative *Escherichia coli* of other serogroups (5).

MacConkey Sorbitol Agar Base w/ Rhamnose (M1727) contains two sugars as sorbitol and rhamnose. Since *E.coli* O157:H7 do not usually ferment sorbitol or rhamnose it appears as colourless to straw coloured colonies. While rhamnose positive and sorbitol negative appear as pink or red coloured colony and it should not be counted as presumptive *Escherichia coli* O157:H7.

MacConkey Sorbitol Agar Base w/ Rhamnose (M1727) contains peptic digest of animal tissue in the medium which supplies necessary nutrients to growing cells. Crystal violet and bile salts mixture present in the medium inhibits growth of gram positive bacteria. Addition of cefixime significantly reduces the number of sorbitol nonfermentors that are to be screened during the attempted isolation of *E.coli* O157: H7.

The isolated suspected colonies of *E.coli* O157: H7 obtained on this medium can be further confirmed using the LK13 *E.coli* Latex Test kit.

Quality Control

Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Purplish red coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 5.65% w/v aqueous solution at 25°C. pH : 7.1±0.2

pH

6.90-7.30

Cultural Response

M1727: Cultural characteristics observed after an incubation at 35-37°C for 18- 24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Cultural Response				
<i>Escherichia coli O157:H7</i> (NCTC 12900)	50-100	good-luxuriant	≥50%	Colourless to straw
<i>Escherichia coli ATCC 25922</i>	50-100	good-luxuriant	≥50%	Pink to red
<i>Proteus mirabilis ATCC 29906</i>	≥10 ³	inhibited	0%	

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

1. March and Ratnam 1986. J. Clin Microbiol, 23:869.
2. Centre for Diseases control. 1991. Morbid. Mortal. Weekly Rep 40:265.
3. Bopp, Brenner, Wells and Stockbine. 1999. In Murray, Baron, Tenover and Tenover (ed.) Manual of Clinical Microbiology, 7th ed. American Society for Microbiology, Washington, DC.
4. Sanderson, Gay, Hancock, Gay, Fox and Besser, 1955. J Clin Microbiol. 33: 2616.
5. Chapman, P.A., Siddons, C.A., Zadik, P.M and Jewes L. (1991). J Med Microbiol 35: 155

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