88902 Mac Conkey-Sorbitol Agar (Sorbitol Mac Conkey Agar, SMAC Agar)

Recommended Medium for isolation of pathogenic Escherichia coli 0157:H7 which does ferment lactose but does not ferment sorbitol. Addition of CT-Supplement (Cat. No. 77981) increases the selectivity for Escherichia coli 0157:H7.

Composition:

Ingredients	Grams/Litre
Peptone	17.0
Proteose peptone	3.0
Sorbitol	10.0
Bile salts	1.5
Sodium chloride	5.0
Crystal violet	0.001
Neutral red	0.03
Agar	13.5
Final pH 7.1+/-0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Directions:
Suspend 50 g in 1 litre of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Pour into sterile petri plates. Dry the surface of the gel before inoculation.

Principle and Interpretation:
Mac Conkey-Sorbitol Agar is based on the formulation described by Rappaport and Henigh (1). The medium contains sorbitol instead of lactose and it is recommended for the detection of enteropathogenic strains of *E. coli 0157:H7* which ferments lactose but does not ferment sorbitol (2) and hence produce colorless colonies. Sorbitol fermenting strains of *E. coli* produce pink-red colonies. The red colour is due to production of acid from sorbitol, absorption of neutral red and a subsequent colour change of the dye when pH of the medium falls below 6.8. *E. coli 0157:H7* has been recognized as a cause of haemorrhagic colitis (3). March and Ratnam (2) reported that the detection of *E.coli 0157:H7* had a sensitivity of 100% and specificity of 85% on Sorbitol Mac Conkey Agar and they recommended this medium as reliable means of screening *E. coli 0157:H7*.
Peptone and proteose peptone provide nitrogenous and other essential growth nutrients. Most of the gram positive organisms are inhibited by crystal violet and bile salts. Sodium chloride maintains the osmotic equilibrium.
Addition of Tellurite-Cefixime Supplement makes the medium selective (5, 6, 7). Potassium tellurite selects the serogroups and inhibits *Aeromonas* species and *Providencia* species. Cefixime inhibits *Proteus* species.

Cultural characteristics after 18-24 hours at 35-37°C.

Organisms (ATCC)	Growth	Color of colony	Sorbitol
Escherichia coli (25922)	+++	pale pink to red	+
Escherichia coli serotype 011 and 055	+++	colorless	-

Escherichia coli 0157:H7	+++	colorless	-
Salmonella typhi (6539)	+++	colorless	-
Shigella flexneri (12022)	+++	colorless	-

References:

1. Rappaport F. and Henigh E., 1952, J. Clin. Path., 5, 361.
2. March S.B., and Ratnam S. (l986), J. Clin. Microbiol. 23, 869-872.
3. Karmali M.A., Petric M., Lim C., et al, 1985, J. infect. Dis., 151-775.
4. Thompson (1990), J. Clin. Microbiol. 29, 2165-2168.
5. Zadik P.M., Chapman P.A., and Siddons C.A. (1993), J. Med. Microbiol., 39, 155-158
6. Weagant S.D. et al., Medium for the selective isolation and detection of E. coli 0157:H7 in foods, J. Food Prot. 58, 7 (1995)
7. DIN 10167. Requires, for best selectivity, addition of CT-Supplement (Cefixim-potassium tellurite)
8. Greenberg A.E., Trussell R.R., Clesceri L.S. (Eds.), Standard Methods for the Examination of Water and Wastewater, 16th ed., A.P.H.A, Washington, D.C. (1985)
9. A. MacConkey, J. Hyg. 8, 333 (1905)
10. European Pharmacopeia II, Chapter VIII, 10
11. A. MacConkey, Bile salt media and their advantages in some bacteriological examinations, J. Hyg., 8; 322 (1908)
12. J. MacFaddin, Media for Isolation-Cultivation-Identification-Maintainance of Medical Bacteria, Vol. l, Williams and Wilkins, Baltimore (1985)
13. A. MacConkey, Bile salt broth, Thompson Yates Lab. Rep., VI/1, 151 (1901)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.