

88474 HiCrome (TM) Mac Conkey-Sorbitol Agar

Selective Agar for the direct isolation and differentiation of *E. coli* 0157:H7-strains from foodstuffs and clinical specimen.

Composition:

| Ingredients | Grams/Litre |
|---|-------------|
| Casein enzymic hydrolysate | 17.0 |
| Proteose peptone | 3.0 |
| Sorbitol | 10.0 |
| Bile salts mixture | 1.5 |
| Sodium chloride | 5.0 |
| Crystal violet | 0.001 |
| Neutral red | 0.03 |
| 5-Bromo-4-Chloro-3-Indolyl-beta-D-glucuronide Sodium salt | 0.1 |
| Agar | 13.5 |

Final pH (at 25 °C) 7.1 ± 0.3

Store below 8°C. use before expiry date on the label.

Directions:

Suspend 50.1 grams in 1000 ml distilled water. Boil gently to dissolve the medium completely. **DO NOT AUTOCLAVE**. Cool to 50°C. Mix well and pour into sterile petri plates. If desired add Tellurite-Cefixime Supplement to the molten and cooled medium (50°C) before pouring into sterile petri plates.

Principle and Interpretation:

Sorbitol MacConkey 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* 0157:H7 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 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.

B.C. indicator is added to detect the presence of an enzyme β -D-glucuronidase which is specific for *E. coli* (4). Strains of *E. coli* possessing β -D-glucuronidase appear as blue coloured colonies on the medium. Enteropathogenic strains of *E. coli* 0157 do not possess β -D-glucuronidase activity (5) and thus produce colorless colonies.

E. coli fermenting Sorbitol and possessing β -D-glucuronidase activity produce purple coloured colonies. Casein enzymic hydrolysate and proteose peptone provide carbonaceous, nitrogenous and other essential growth nutrient. Most of the gram positive organisms are inhibited by a crystal violet and bile salts. Sodium chloride maintains the osmotic equilibrium.

Addition of Tellurite-Cefixime Supplement makes the medium selective (6). Potassium tellurite selects the serogroups and inhibits *Aeromonas* species and *Providencia* species. Cefixime inhibits *Proteus* species.

Cultural characteristics after 24 hours (48 if necessary) at 37°C.

| Organisms (ATCC) | Colour of Colony * | Sorbitol | β -glucuronidase |
|---------------------------------|--------------------|----------|------------------------|
| <i>Escherichia coli</i> 0157:H7 | colourless | - | - |
| <i>Escherichia coli</i> (25922) | purple | + | + |

* without the addition of Tellurite-Cefixime Supplement

References:

1. Rappaport F. and Henigh E., 1952, J. Clin. Path., 5, 361.
2. March S.B., and Ratnam S. (1986), J. Clin. Microbiol. 23, 869-872.
3. Karmali M.A., Petric M., Lim C., et al, 1985, J. infect. Dis., 151-775.
4. Hansen W. und Yourassawsky E., 1984, J. Clin. Microbiol., 20:1177,
5. Thompson (1990), J. Clin. Microbiol. 29, 2165-2168.
6. Zadik P.M., Chapman P.A., and Siddons C.A. (1993), J. Med. Microbiol., 39, 155-158