

MAST® Culture Media and Supplements

Technical Information Sheet

Product Code DM 491



Sorbitol MacConkey Agar

A selective and differential medium for the presumptive identification of *E. coli* O157:H7.

1. Description

Escherichia coli serotype O157:H7 is now recognised as an important gastro-intestinal pathogen. It was first identified as the causative agent of an outbreak of haemorrhagic colitis (HC) in 1982¹ and since then further outbreaks and sporadic cases of *E. coli* O157:H7 related HC have been recorded.²

The illness is characterised by acute onset of severe abdominal cramps accompanied by watery diarrhoea, followed, in most cases, by bloody diarrhoea. The symptoms persist for between two and fifteen days before resolving spontaneously, although serious complications have been associated with *E. coli* O157:H7 infection, principally Haemolytic Uraemic Syndrome (HUS).³

Foods of animal origin are probably the major sources of human infection, outbreaks having been linked to the consumption of unpasteurised milk and inadequately cooked hamburger meat.⁴ There is also evidence of

person to person transmission,⁴ and detection of the organism has thus become important to both food and clinical microbiologists.

Laboratory screening methods are based on the characteristic inability of *E. coli* O157:H7 to ferment sorbitol within 24 hours, using a modified MacConkey Agar first proposed by Rappaport and Henig.⁵ MAST Sorbitol MacConkey Agar (SMAC) is based on their formulation and contains 1% D-Sorbitol instead of lactose. The medium is recommended for screening only, as certain other faecal flora will be found to be non-sorbitol fermenting (NSF).⁶ By using MAST Cefixime Tellurite (CT) Selectavial (SV48), the medium can be made selective to improve recognition of *E. coli* O157. Identification of isolates should be made by slide agglutination with final confirmation by a reference laboratory.⁷

2. Technical Formula*

Formula	grams per litre
Peptone mixture	19.0
Sodium desoxycholate	1.0
Crystal Violet	0.001
Sorbitol	10.0
Sodium chloride	5.0
Neutral red	0.03
Agar	15.0
pH approx 7.2	

3. Directions

1. Suspend by swirling 50g of powder in 1 litre or the contents of the sachet in the stated volume of distilled or deionised water.
2. Autoclave at 121°C (15 p.s.i.) for 15 minutes.
3. Mix well before pouring

4. In Use

Faeces Samples

Emulsify 1g of faeces sample in 10ml of Ringers solution and inoculate plates of MAST CT-SMAC and MAST MacConkey Agar No.3 (DM143). Samples should be taken within 2 days of the onset of diarrhoea to ensure maximum recovery of the organism.⁸

Food Samples

Prepare a 10-1 homogenate of the food sample and enrich according to a recommended method.⁹ After enrichment subculture onto CT-SMAC.

Incubate all plates at 37°C for 24 hours and examine for small, round, smooth, NSF colonies. These colonies should be lactose fermenting on MacConkey Agar No.3. Plates should not be incubated for longer than 24 hours before reading.

Suspect colonies may have their identity confirmed by slide agglutination against MAST ASSURE™ *E. coli* O157 antiserum (M12030). Cultures should be sent to a reference laboratory for confirmation of toxin productions and serotype.

5. References

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