Sorbitol MacConkey Agar

(SMAC, CT-SMAC)

LAB 161

Description
This is a selective differential medium for the isolation of *Escherichia coli* 0157:H7, the primary serovar associated with haemorrhagic colitis (HC) and haemolytic uraemic syndrome (HUS). Pathogenicity of the organism is linked to the production of verocytotoxins (VT1 and VT2), but it should be noted that not all strains of O157:H7 produce verocytotoxins, and that strains from other serovars can be toxin producers (e.g. O26, O111, O113, O145).

O157:H7 has been associated epidemiologically with food poisoning outbreaks involving beefburgers and cold cooked meats. The medium is a modification of MacConkey Agar No. 3 with the substitution of the fermentable carbohydrate from lactose to sorbitol. O157:H7 is sorbitol negative and produces translucent colonies whereas most other *E. coli* strains are sorbitol positive and so produce pink/red colonies. Selectivity of the medium can be increased by adding Cefixime-Tellurite (C.T.) supplement X161.

Typical Formula	g/litre
Peptone	20.0
Sorbitol	10.0
Bile salts no.3	1.5
Sodium chloride	5.0
Neutral red	0.03
Crystal violet	0.001
Agar	12.0

Method for reconstitution
Weigh 48.5 grams of powder and add to 1 litre of de-ionised water. Allow to soak for 10 minutes, swirl to mix and sterilise by autoclaving at 121°C for 15 minutes. Cool to 47°C, add 2 vials of CT supplement X161, and pour plates. Dry the surface prior to inoculation.

Appearance: Pale red, slight violet tinge.

pH: 7.1 + 0.2

Minimum QC organisms: *E. coli* O157:H7 (non-toxigenic) WDCM 00014 (translucent)
E. coli WDCM 00013 (Pink/red)
Ent. Faecalis WDCM 00087 (inhibition)

Storage of Prepared Medium: Plates – up to 7 days at 2-8°C in the dark.

Inoculation: Surface streak for single colonies.

Incubation: 37°C aerobically for 18-24 hr.

Growth Characteristics			
organism	**size (mm)**	**shape**	**colour**
E. coli O157:H7	2.5 – 4.0	CV.E.G	Translucent
Other *E. coli*	2.5 – 4.0	CV.E.G	Pink/red
Sorbitol +ve organisms	2.5 – 5.0	Any	Pink/red

References

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