Technical Data Sheet

CE Sorbitol-MacConkey (SMAC) Agar

Ordering number: 1.09207.0500

Selective agar for the direct isolation and differentiation of enterohemorrhagic *Escherichia coli* (EHEC) 0157:H7-strains from stool.

The culture medium complies with the requirements of the DIN Norm 10167 for the detection of *Escherichia coli* serotype 0157:H7 as well as with the methods of FDA-BAM for the isolation of enterohemorrhagic Escherichia coli (EHEC). SMAC Agar is a slightly selective medium and should not be solely used to detect pathogenic E.coli O157: H7 strains as some nontoxic strains will also not ferment sorbitol.

IVD in vitro diagnosticum - For professional use only

Mode of Action

Bile salts mixture and crystal violet largely inhibit the growth of the Gram-positive microbial flora. The addition of Cefixime Potassium tellurite (CT) supplement increases the selectivity for *Escherichia coli* 0157:H7 and suppresses the remaining accompanying flora.

For the detection of *Escherichia coli* 0157:H7 the CT-SMAC Agar method is superior to the HC Agar (SZABO) method according to the study of Weagant (1995).

Sorbitol, together with the pH indicator neutral red, is used to detect sorbitol-positive colonies and turning them red in color. Sorbitol-negative strains, on the other hand, form colorless colonies.

Typical Composition

Peptone	20 g/l
NaCl	5 g/l
Bile Salts No. 3	1.5 g/l
Sorbitol	10 g/l
Crystal Violet	0.001 g/l
Neutral Red	0.03 g/l
Agar-Agar	15 g/l

Preparation

Suspend 51.5 g in 1 l of demineralized water. Autoclave 15 min at 121 °C. Pour plates.

CT-SMAC Agar: Suspend 25.8 g in 500 ml of demineralized water. Autoclave 15 min at 121 °C. Dissolve the lyophilisate of one CT Supplement in the original vial by adding about 1 ml of sterile distilled water. Mix gently and add the contents to the sterile, still liquid SMAC Agar cooled below 50 °C. Pour plates.

The appearance of the plates is clear and red.

The pH value at 25 °C is in the range of 6.9-7.3.

Experimental Procedure and Evaluation

Inoculate 25 g of the food sample in 225 ml mEC broth or mTSB broth and incubate for 18-24 h at 35-37 °C aerobically.

Approximately 0.1 ml of the broth is then streaked on the surface of SMAC Agar or CT-SMAC Agar in such a way to obtain well isolated single colonies.

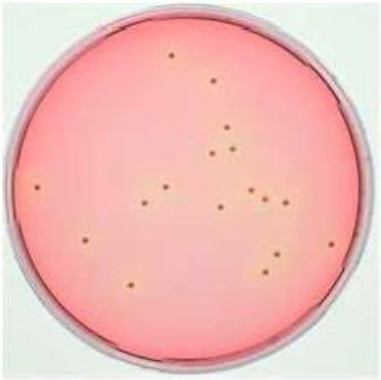
Incubation: 18-24 h at 35 °C aerobically.

Stool specimens are inoculated directly onto the plates as loop smears and incubated at 37 °C for 18-24 h. Colorless, sorbitol-negative colonies must be subsequently isolated and tested with special antisera.

SMAC

Colorless colonies: *Escherichia coli* 0157:H7 (EHEC type)
Red colonies: *Escherichia coli*

CT-SMAC



Colorless colonies: *Escherichia coli* 0157:H7 (EHEY type)
No growth: *Escherichia coli*

Storage

Usable up to the expiry date when stored dry and tightly closed at +15 to +25 °C. Protect from light.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25 °C.

The prepared plates are stable for up to 6 months when stored at +2 to +8 °C.

Specimen

e.g. Stool, urine.

Clinical specimen collection, handling and processing. See General instructions of use.

Quality Control

Control Strains	ATCC #	Inoculum CFU	Incubation	Expected Results
Escherichia coli 0157	35150	10-100	24 h at 37 °C	Recovery ≥ 50 %, colorless colonies
Escherichia coli 0157:H7	43894	10-100	24 h at 37 °C	Recovery ≥ 50 %, colorless colonies
Escherichia coli 0157:H7	43895	10-100	24 h at 37 °C	Recovery ≥ 50 %, colorless colonies
*Escherichia coli**	11775	> 10^4	24 h at 37 °C	Growth partly inhibited, colorless colonies
*Escherichia coli**	25922	> 10^4	24 h at 37 °C	Growth partly inhibited, colorless colonies
*Staphylococcus aureus**	6538	> 10^4	24 h at 37 °C	Total inhibition
*Staphylococcus aureus**	25923	> 10^4	24 h at 37 °C	Total inhibition

* Inhibited strains tested with three-loop-streak.

Base tested with supplement cat. no. 1.09202.

Please refer to the actual batch related Certificate of Analysis.

Literature

DIN Deutsches Institut für Normung e.V.: Nachweis von *Escherichia coli* O157 in Lebensmitteln.- DIN 10167.

FDA Bacteriological Analytical Manual (1995): 8th edition. Chapter 4. *Escherichia coli* and the *Coliform* Bacteria, page 4.20: Isolation Methods for Enterohemorrhagic *E.coli* (EHEC).

Weagent, S.D., Bryant, J.L. and Jinneman, K.G. (1995): An improved rapid technique for isolation of *Escherichia coli* O157:H7 from foods. J. Food Prot. **58**: 7-12.

Zadik, P. M., Chapman, P.A. and Siddons, C.A. (1993): Use of tellurit for the selection of verocytotoxigenic *Escherichia coli* O157. J. Med. Microbiol., **39**: 155-158.

Ordering Information

Product	Cat. No.	Pack size
Sorbitol-MacConkey (SMAC) Agar	1.10236.0500	500 g
CT-Supplement	1.09202.0010	10 x 1 vial
mEC-Broth with Novobiocin	1.14582.0500	500 g
mTSB-Broth with Novobiocin	1.09205.0500	500 g

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