

# E coli Selective Supplements

dehydrated media supplements for the *in vitro* isolation of *Escherichia coli*

## Description

Verocytotoxin-producing *E coli* have become of particular significance in the last decade with a number of deaths associated with outbreaks of infection in many parts of the world. *E coli* O157:H7 is the most common serogroup associated with the production of verotoxin and resultant haemorrhagic colitis and haemolytic uraemic syndrome. The source of infection is often contaminated beef and beef products but it has also been isolated from milk and dairy products.

*E coli* O157 does not ferment Sorbitol and the substitution of this sugar into MacConkey agar differentiates *E coli* from non-Sorbitol fermenters including O157. The necessary selectivity of the medium is enhanced by the inclusion of Cefixime and Potassium tellurite. However, although cattle are obviously a reservoir of *E coli* O157, the organism is not readily isolated from meats. The use of enrichment procedures has improved the isolation rates. Both Novobiocin and VCC supplements have been used for the preparation of enrichment broths and have been shown to work best in a tryptone soya broth enhanced with bile salt and dipotassium hydrogen o-phosphate.

The inclusion of triphenyl tetrazolium chloride in Tergitol-7 agar provides a method for early detection (10 hours) and selection of *E coli* and faecal contamination in foodstuffs. The sodium heptadecyl sulphate inhibits undesired bacteria while the fermentation of lactose and failure to convert TTC produces yellow *E coli* colonies while other uninhibited coliforms produce red formazon from TTC. Yeasts will grow on the medium; *Candida* giving white colonies while other yeasts give red colonies.

The order codes use a suffix of -A, -B, -C or -D for volumes of 500ml, 1l, 2.5l or 5l respectively.

## Supplement Formulae:

IS/EC-	O157 Isolation	ES/EC2-	O157 Enrichment
Cefixime	.05 mg/l	Novobiocin	20 mg/l
Potassium tellurite	2.5 mg/l		

  

IS/EC4-	Early detection	ES/EC3-	O157 Enrichment
triphenyl Tetrazolium chloride	40 mg/l	Vancomycin	.05 mg/l
		Cefixime	.05 mg/l
		Cefsulodin	2.5 mg/l

## Precautions

This product is for *in vitro* diagnostic use, and should be used by properly trained laboratory professionals. Dispose of as clinical waste.

## Storage

Store in sealed container in cool, dry location.

Media supplements should not be used if packaging is damaged, if the expiry date has passed, or if there are other signs of deterioration or contamination.

Store the prepared media at 4-8°C in the dark for not more than 1 week.

## Instructions for use

*E coli* Selective Supplements are only recommended for use with the following media:

- IS/EC- Sorbitol MacConkey agar <sup>(1)</sup>
- ES/EC2 / 3- Tryptose Soya Broth with 1.5g/l each of bile salts and dipotassium hydrogen o-phosphate added <sup>(2)</sup>
- IS/EC4- Tergitol-7 agar <sup>(3)</sup>

## Procedure

1. Make up the appropriate volume (see vial label) of medium, and sterilise according to the manufacturer's recommendations.
2. Allow to cool to 45°C.
3. Rip off the plastic cap from the supplement vial and discard.
4. Using aseptic technique, remove the rubber bung and avoid further contamination.
5. Add 5ml of sterile water and allow to dissolve. It may be necessary to shake to achieve final solution.
6. Add the contents of the vial to the medium.
7. Mix carefully and distribute medium into suitable sterile containers.
8. Use according to the manufacturer's recommendations.

## Quality Assurance

All lot numbers have been reconstituted in sterile solvent, and tested for sterility, and performance using the quality control organisms listed below, and have been found to be acceptable. Characteristics assessed include inhibitory activity at normal, higher than normal, and lower than normal concentrations of usage, to a range of test organisms, and confirmation of growth of the organisms to be isolated at a higher recovery than 66% of the control growth.

<i>Aeromonas hydrophila</i> NCTC 8049	<i>Listeria innocua</i>
<i>B. cereus</i> NCTC 7464 ATCC 10876	<i>Listeria monocytogenes</i> ATCC 7644
<i>Bacillus fragilis</i>	<i>Listeria monocytogenes</i> NCTC 5214
<i>Campylobacter jejuni</i> ATCC 33291	<i>Listeria monocytogenes</i> NCTC 11994
<i>Candida parapsilosis</i>	<i>Morganella morgani</i>
<i>Candida albicans</i> NCPF 3179	<i>Neisseria gonorrhoeae</i> NCTC 12700
<i>Clostridium difficile</i> ATCC 9689	<i>Proteus mirabilis</i>
<i>Clostridium perfringens</i> ATCC 13124	<i>Proteus vulgaris</i>
<i>E coli</i> NCTC 12241 ATCC 25922	<i>Ps. aeruginosa</i> ATCC 27853
<i>E coli</i> NCTC 10418	<i>Ps. aeruginosa</i> NCTC 10662 ATCC 25668
<i>E coli</i> O157:H7 NCTC 12900	<i>Pseudomonas cepacia</i>
<i>Enterobacter aerogenes</i>	<i>Pseudomonas maltophilia</i>
<i>Enterobacter cloacae</i>	<i>Salmonella typhimurium</i> NCTC 12023 ATCC 14028
<i>Enterococcus faecalis</i> NCTC 775	<i>Serratia liquefaciens</i>
<i>Flavobacterium spp.</i>	<i>Serratia marscecens</i>
<i>Gardnerella vaginalis</i> ATCC 14018	<i>Shigella spp.</i>
<i>Haemophilus influenzae</i> ATCC 10211	<i>Staphylococcus aureus</i> ATCC 25923
<i>H. parainfluenzae</i> ATCC 7901	<i>Staphylococcus aureus</i> NEQAS 4937
<i>Hansenula anomala</i>	<i>Staph epidermidis</i> N. Manc. Hosp. 7
<i>Klebsiella pneumoniae</i>	<i>Staph epidermidis</i> N. Manc. Hosp. 8
<i>Legionella pneumophila</i> NCTC 11192	<i>Yersinia enterocolitica</i> ATCC 9610
<i>Legionella pneumophila</i> NCTC 12821	

If product fails to conform to specifications, please advise Abtek Biologicals ([www.abtekbio.com](http://www.abtekbio.com)).

## References

- (1) Rappaport F. & Henig E. (1952) Media for the isolation and differentiation of pathogenic *Escherichia coli* (serotypes 0111 and 055). *Journal of Clinical Pathology* 5:361-362
- (2) Doyle M.P. & Schoeni J.L. (1984) Isolation of *Escherichia coli* O157:H7 from retail fresh meats and poultry. *Applied Environmental Microbiology* 53:2394-2396
- (3) Chapman G.H. (1947) A superior culture medium for the enumeration and differentiation of coliforms. *Journal of Bacteriology* 53:504