XLT4 Agar Base

M1147

XLT4 Agar Base medium is recommended for selective isolation of *Salmonella* species other than *Salmonella* Typhi.

Composition**

Ingredients	Gms / Litre
Proteose peptone	1.600
Yeast extract	3.000
L-Lysine	5.000
Xylose	3.750
Lactose	7.500
Saccharose	7.500
Ferric ammonium citrate	0.800
Sodium thiosulphate	6.800
Sodium chloride	5.000
Phenol red	0.080
Agar	18.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 59.03 grams in 1000 ml distilled water. Add 4.6 ml XLT4 Supplement (FD152). Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE OR OVERHEAT. Mix well and pour in sterile Petri plates.

Principle And Interpretation

Salmonella is a genus of gram-negative enterobacteria commonly implicated in foodborne illness and is the causative agent of typhoid and paratyphoid fever. Although most *Salmonella* cannot be distinguished by biochemical characteristics, one serotype, namely *S. Typhi* produce only a trace amount of hydrogen sulphide and is less active biochemically than the more common serotypes (1). XLT4 Agar Base is formulated as described by Miller and Tate (2) for isolating Salmonella from faecally contaminated farm samples, which contains other bacteria as well. XLT4 Agar Base enhances the recovery of *Salmonella* species other than *Salmonella* Typhi (3-7).

Proteose peptone is a source of carbon, nitrogen and other essential amino acids and growth factors. Yeast extract supplies nitrogenous requirements and vitamins required for growth. The sugars namely lactose, saccharose and xylose are the fermentable carbohydrates. *Salmonella* rapidly utilize xylose, producing acidity. Subsequently they decarboxylate lysine and revert to alkalinity. To add to the differentiating ability of the formulation, an H2S indicator system, consisting of sodium thiosulphate and ferric ammonium citrate is included for the visualization of the hydrogen sulphide produced, resulting in the formation of colonies with black centers. The non-pathogenic H2S producers do not decarboxylate lysine; therefore, the acid reaction generated by them prevents the blackening of the colonies (8).

XLT4 Agar is both selective and differential. Tergitol 4 (FD152) inhibits growth of non- *Salmonella* organisms. Presumptive *Salmonella* colonies should be confirmed by performing biochemical tests.

Quality Control

Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.8% Agar gel.

Colour and Clarity of prepared medium

Red coloured clear to slightly opalescent gel forms in Petri plates.

Reaction

Reaction of 5.9% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH
7.20-7.60

Cultural Response
M1147: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours with added XLT4 Supplement(FD152).

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
Enterococcus faecalis ATCC 29212	>=10^3	inhibited	0%	
Escherichia coli ATCC 25922	50-100	Fair-good	30-40%	Yellow
Salmonella Enteritidis ATCC 13076	50-100	good-luxuriant	>=50%	red with black centers
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	>=50%	red with black centers
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	0%	
Proteus mirabilis ATCC 25933	50-100	none-poor	<=10%	

Storage and Shelf Life
Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference
1. Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed., J. B. Lippinccott Company Chadwick P., Delisle G. H and Byer M., 1974, Can. J. Microbiol., 20.1653-1664.
2. Miller R. G and Tate C. R., 1990, The Maryland Poultryman April 2-7
3. Tate C. R., Miller R. G. and Mallinson E. T., 1992, J. Food. Prot. 55:964
4. Miller R. G., Tate C. R., and Mallinson E. T. and Schemer J. A., 1991, Poultry science 70:2429
5. Miller R. G., Tate C. R., and Mallinson E. T. and Schemer J. A., 1991, Poultry science 71:398
6. Dusch H. and Altwegg M., 1994, Abstr. Annu. Meet. Am. Soc. Microbiol. C5:557
7. Dusch H. and Altwegg M., 1995, J. Clin. Microbiol. 33: 802
8. Taylor W. J., 1965, Am. J. Clin. Pathol., 44:471-475.

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