

**XLD AGAR, MODIFIED (as per ISO)****TM 1621**

For isolation and enumeration of *Salmonella typhi* and other *Salmonella* species

**Composition**

Ingredients	g/L
Agar	15.00
Sucrose	7.50
Lactose	7.50
Sodium thiosulphate	6.80
L-Lysine hydrochloride	5.00
Sodium chloride	5.00
Xylose	3.75
Yeast extract	3.00
Sodium desoxycholate	1.00
Ferric ammonium citrate	0.80
Phenol red	0.08

\* Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight.

**Instructions for use**

Dissolve 55.43g in 1000 ml distilled water. Gently heat to boil with gentle swirling and dissolve the medium completely. DO NOT AUTOCLAVE. DO NOT OVERHEAT. Transfer the medium immediately to a water bath at 45 - 50°C and pour into sterile Petri plates.

**Appearance:** Bright red to reddish-orange, slightly opalescent gel

**pH (at 25°C):** 7.4 ± 0.2

**Principle**

XLD AGAR, MODIFIED is a differential media used for isolation and enumeration of *Salmonella typhi* other *Salmonella* species. Formulated as per ISO 6579 standard.

Medium contains Yeast extracts as source of vitamins and minerals. Sodium deoxycholate acts as a selective agent, which is inhibitory to Gram-positive bacteria and suppresses other enteric pathogens and enhances the growth of few enteric bacilli.

Xylose as a fermentable carbohydrate, which is utilized by *Salmonella* species. Fermentation of Xylose leads to medium colour change to red indicated by Phenol red indicator. Medium also contains Lactose and Sucrose as the source of fermentable sugar.

L-lysine is an essential amino acid source. Lysine is added to differentiate *Salmonella* species. Sodium chloride maintains osmotic balance. Sodium thiosulphate and Ferric ammonium citrate helps in development of black centered colonies on production of hydrogen sulphide in the medium. Agar is added as a solidifying agent.

**Microbiological parameters (Growth promotion test)**

Cultural characteristics observed after inoculation ( $10^3 - 10^4$ CFU/ml) and incubation at  $37 \pm 1^\circ\text{C}$  for  $24 \pm 3$  hours.

Test strains	ATCC	Inoculum (CFU/ml)	% Recovery	Colony appearance
<i>Salmonella typhimurium</i>	14028	$10^3$	$\geq 50\%$	Red with black centre
<i>Salmonella enteritidis</i>	13076	$10^3$	$\geq 50\%$	Red with black centre
<i>Shigella flexneri</i>	12022	$10^3$	$\geq 40\%$	Red
<i>Escherichia coli</i>	25922	$10^3$	20 - 30%	Yellow
<i>Staphylococcus aureus</i>	6538	$10^4$	0%	NA
<i>Enterococcus faecalis</i>	29212	$10^4$	0%	NA

NA; Not applicable

**References**

1. Taylor. Am. J. Clin. Pathol. 44:471. (1965).
2. Taylor and Schelhart. Appl. Microbiol. 16:1387. (1968).
3. International Standard UNE-EN-ISO 6579. Food microbiology for human consumption and animal feed. Horizontal Method for the detection of Salmonella species.
4. NF EN ISO 6579 (V 08-013). Mars. Microbiologie des aliments. Méthode horizontale pour la recherche des Salmonella sp. (2007).