

TMHV 112 - XLD AGAR (XYLOSE LYSINE DEOXYCHOLATE AGAR) (as per USP/BP/EP/JP/IP)(VEG.)

INTENDED USE

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

PRODUCT SUMMARY AND EXPLANATION

XYLOSE LYSINE DEOXYCHOLATE AGAR is used as a selective and differential medium for the recovery of *Salmonella* and *Shigella* species. This medium is a selective as well as differential medium formulated by Taylor for the isolation and identification of enteric pathogens especially Shigellae from stool samples. Human Salmonellae infections are most commonly caused by ingestion of food, milk or water contaminated by human or animal excreta. The medium is also employed for pharmaceutical testing and non-sterile product testing for the detection of Salmonella after enrichment in Rappaport Vassalidias Salmonella Enrichment Broth in accordance with the harmonized method of USP/EP/BP/JP/IP.

COMPOSITION

Ingredients	Gms / Ltr
Agar	15.000
Sucrose	7.500
Lactose	7.500
Sodium thiosulphate	6.800
L-Lysine	5.000
Sodium chloride	5.000
Xylose	3.750
Yeast extract	3.000
Sodium deoxycholate	2.500
Ferric ammonium citrate	0.800
Phenol red	0.080

PRINCIPLE

Deoxycholate, ferric ammonium citrate and sodium thiosulphate are selective agents that inhibit gram-positive microorganisms. Essential nutrients, growth factors for growth of microorganism are provided by yeast extract. Xylose, sucrose and lactose are the fermentable sugars in this medium. Most enteric organisms except Shigella ferment xylose to produce acid. Salmonella also produce decarboxylate lysine which keeps the pH neutral or slightly alkaline. At this pH *Salmonella* species can produce hydrogen sulphide from the reduction of thiosulphate. This is indicated by Ferric ammonium citrate producing black or black-centred colonies. Some organisms, such as Citrobacter, can also decarboxylate lysine. However, they ferment lactose and sucrose which keeps the pH too low for the production of hydrogen sulphide. Bacteria that ferment none of these sugars, e.g., Shigella, appear as red, translucent colonies. Yellow colonies indicate a rapid fermentation of lactose and acid pH, as demonstrated by *Escherichia coli*. Since Salmonella ferment xylose as readily as coliforms, a second differential mechanism, lysine decarboxylase, is utilized. Those organisms that ferment xylose as well as decarboxylate lysine exhaust the xylose rapidly and the lysine reaction causes a pH reversal to the alkaline reaction similar to Shigella. Lactose and Sucrose are added in excess to prohibit this same reversion by lysine-positive coliforms.

Sodium thiosulphate helps in reactivation of sulphur containing compounds and prevents the desiccation of these compounds during storage. It also forms the substrate for enzyme thiosulphate reductase, which breaks it to form H₂S.



Thiosulphate and ferric ammonium citrate are the H₂S indicators in the medium. Sodium thiosulphate is also inactivator of halogens, mercurial and aldehyde and can minimize its toxicity in the testing sample, if any during microbial limit tests. Sodium chloride maintains the osmotic equilibrium in this medium. Phenol red is the pH indicator.

INSTRUCTION FOR USE

- Dissolve 55.18 grams of the medium in 1000 ml distilled water.
- Gently heat to boiling with gentle swirling and dissolve the medium completely. Do not autoclave or overheat.
- Transfer immediately to a water bath at 50°C.
- After cooling, pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder	:	Light yellow to pink colour, homogeneous free flowing powder
Appearance of Prepared medium	:	Red colour, clear to slightly opalescent gel
pH (at 25°C)	:	7.4± 0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Colour of colony	Recovery	Incubation Temp.	Incubation Period
<i>Salmonella typhimurium</i>	14028	50-100	Good-Luxuriant	Red with black centres	≥50%	30-35°C	18 – 48 Hours
<i>Salmonella typhi</i>	6539	50-100	Good-Luxuriant	Red with black centres	≥50%	30-35°C	18 – 48 Hours
<i>Proteus mirabilis</i>	25933	50-100	Good-Luxuriant	Grey with black centres	≥50%	30-35°C	18 – 48 Hours
<i>Shigella flexneri</i>	12022	50-100	Fair	Red	30-40%	30-35°C	18 – 48 Hours
<i>Shigella sonnei</i>	25931	50-100	Fair	Red	30-40%	30-35°C	18 – 48 Hours
<i>Escherichia coli</i>	25922	50-100	Partial inhibition	Yellow	20-30%	30-35°C	18 – 48 Hours
<i>Escherichia coli</i>	8739	50-100	Partial inhibition	Yellow	20-30%	30-35°C	18 – 48 Hours
<i>Staphylococcus aureus</i>	25923	≥1000	Inhibited	-	0%	30-35°C	≥72 Hours
<i>Staphylococcus aureus</i>	6538	≥1000	Inhibited	-	0%	30-35°C	≥72 Hours
<i>Enterococcus faecalis</i>	29212	≥1000	Inhibited	-	0%	30-35°C	≥72 Hours

PACKAGING

In 100 & 500 gm packaging size.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use powder if they show evidence of microbial contamination, discoloration, drying, or other signs of deterioration.










DISPOSAL



After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. Taylor W. L., 1965, Am. J. Clin. Pathol., 44:471-475.
2. Taylor W. L. and Harris B., 1965, Am. J. Clin. Pathol., 44:476.
3. Taylor W. L. and Harris B., 1967, Am. J. Clin. Pathol., 48:350.
4. Taylor W. L. and Schelhart B., 1967, Am. J. Clin. Pathol., 48:356.
5. Taylor W. L. and Schelhart B., 1968, Am. J. Clin. Pathol., 16:1387.2.
6. The United States Pharmacopoeia, 2011, The United States Pharmacopoeial Convention. Rockville, MD.
7. British Pharmacopoeia, 2011, The Stationery office British Pharmacopoeia.
8. European Pharmacopoeia, 2011, European Dept. for the quality of Medicines.
9. Japanese Pharmacopoeia, 2008.

 GMP Good Manufacturing Practices Certified	 Best Before	 QTY. Quantity	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 LOT/ B. NO. Lot / Batch Number	 Consults Instructions for Use	 QR Code	

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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