



Xylose Lysine Deoxycholate Agar

RDM-XLDA-01

Principle

Xylose Lysine Deoxycholate Agar is a differential medium, slightly selective for the detection of pathogenic enterobacteria, especially *Salmonella* and *Shigella*. Media is composed of xylose, lysine, lactose monohydrate, sucrose, sodium chloride, yeast extract, phenol red, sodium deoxycholate, sodium thiosulphate, ferric ammonium citrate and agar. Yeast extract provides sources of nitrogen and carbon, as well as vitamins and cofactors required for growth. Xylose, lactose and sucrose are the carbon source. Xylose is fermented by most enteric organisms except *Shigella* and *Providencia*. Sucrose and lactose provide sources of fermentable carbohydrate. Lysine is also added to differentiate *Salmonella*, which undergoes decarboxylation to cadaverine. Phenol red is pH indicator. Sodium desoxycholate inhibits growth of gram-positive organisms, but *Shigella* grows at this concentration. Sodium chloride maintains osmotic balance in the medium. Agar is a solidifying agent. In medium as the concentration of xylose is declined, the *Salmonella* organism's decarboxylate lysine causing is version to alkaline conditions. The resulted alkaline reversion by lysine-positive organisms is prevented by acid produced by the fermentation of lactose and sucrose. Simultaneously, the sodium thiosulfate is metabolized to hydrogen sulfide and reacts with ferric ammonium citrate which acts as indicator of hydrogen sulfide production under alkaline conditions. The hydrogen sulfide producers are detected by darker colonies, due to the ferric sulfure precipitate. Due to xylose, lactose or sucrose fermentation produce the acidification and lysine decarboxylation to cadaverine causes alkalization and consequently the phenol red indicator turns to red. This color disappears after 24 hours, so observations must be carried out between 18 and 20 hours. The *Shigella* and *Salmonella* are differentiated on basis of ferrous sulfure precipitation. The *Salmonella* colonies show red colored with black centers and *Shigella* are red colored without black center.

Use: Recommended for the isolation and enumeration of *Salmonella* and *Shigella* from pharmaceutical products.

Contents*

Ingredients	Gram/Litre
Xylose	3.500
L-Lysine	5.000
Lactose Monohydrate	7.500
Sucrose	7.500
Sodium Chloride	5.000
Yeast Extract	3.000
Phenol Red	0.080
Sodium Deoxycholate	2.500
Sodium Thiosulphate	6.800
Ferric Ammonium Citrate	0.800
Agar	13.500
pH at 25°C	7.4 ±0.2

* Formula adjusted for optimum performance and parameters

Directions: Dissolve 55.20 grams in 1000 ml purified/ distilled water. Heat until the medium boils with frequent agitation. **Do Not Autoclave or Overheat.** Transfer immediately to a water bath at 50°C. After cooling, pour into sterile petri plates and allow to solidify. Ensure complete solidification and inoculate test sample aseptically.

Specimens types analyzed

Pharmaceutical samples, clinical and non-clinical samples etc.

Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the

established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	Light beige to pink colored homogeneous free flowing powder
Reaction of 4.5% solution	7.4±0.2 at 25 °C
pH	7.20- 7.60
Gelling	Firm comparable with 1.35% agar gel
Color and clarity of ready medium	Red colored clear to slightly opalescent gel
Growth Promotion properties	Best at ≤ 100 CFU at 32-37 °C for 18-72 h
Indicative properties	Optimum at ≤ 100 CFU at 32-37 °C for 18-48 h
Negative control	Performed using sterile distilled water

Different Microbial Response

Organism	Inoculum	Growth	Recovery	Colony color	Incubation temperature & period
<i>Salmonella Typhimurium</i> (ATCC14028)	50-100	Luxurious	70-80%	Red with black centers	30-37°C, 18-48 h
<i>Shigella flexneri</i> (ATCC 12022)	50-100	Luxurious	70-80%	Red	30-37°C, 18-48 h

Storage and Shelf Life

Hygroscopic; keep container tightly closed. Store in cool dry place.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

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5. Rand, M. C., Arnold E. Greenberg, and Michael J. Taras, (1976), *Standard methods for the examination of water and wastewater*. Prepared and published jointly by American Public Health Association, American Water Works Association, and Water Pollution Control Federation.
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