



Reference : 01-211

Scharlau Microbiology - Technical data sheet

**Product :**  
**XYLOSE LYSINE DEOXYCHOLATE AGAR (XLD Agar)**  
**(Eur. Pharm.)**

**Specification**

Solid medium for the isolation of enteropathogenic species, especially *Salmonella* and *Shigella* according to Pharmacopeial Harmonised Method and ISO Standard.

**Formula \* in g/L**

Xylose.....	3.50	Sodium deoxycholate.....	2.50
L-Lysine.....	5.00	Sodium thiosulfate.....	6.80
Lactose.....	7.50	Ammonium ferric citrate.....	0.80
Sucrose.....	7.50	Agar.....	15.00
Sodium chloride.....	5.00		
Yeast extract.....	3.00	Final pH 7,4 ±0,2 at 25 °C	
Phenol red.....	0.08		

\* Adjusted and /or supplemented as required to meet performance criteria

**Directions**

Suspend 56,68 g of powder in 1 L of distilled water. Heat with constant stirring until boiling (90-100 °C). Pour immediately into plates. Do not autoclave and avoid remelting.

**Description**

Xylose Lysine Deoxycholate Agar is a selective differential medium, suitable for the detection of pathogenic enterobacteria, especially *Shigella*. Gram positive microbiota are inhibited by the low amount of deoxycholate, whilst *Shigella* grows.

Xylose, lactose or sucrose fermentation produces the acidification of the medium, and this is seen by the indicator turning yellow, surrounding the colonies. This colour disappears after 24 hours, so observations must be carried out between 18 and 24 hours.

Hydrogen sulfide production from thiosulfate is easily detected because colonies become darker, due to the ferric sulfide precipitate. Lysine decarboxylation to cadaverine may also be observed in the medium, since it produces alkalization and consequently the indicator turns to red.

All these reactions allow a good differentiation of *Shigella*. *Edwardsiella* and *Proteus inconstans* are the only enterobacteria other than *Shigella* which do not ferment xylose and therefore show negative fermentation reaction. *Salmonella* ferment xylose, but it is consumed quickly and alkalization of the medium due to lysine decarboxylation, may mask the reaction. *Salmonella* colonies become darker due to ferrous sulfide precipitates, which is also a common property with *Edwardsiella*.

Other types of enterobacteria do not suffer this phenomenon, since acid accumulation due to lactose and sucrose fermentation is so high that it avoids pH reversion by decarboxylation and even ferrous sulfide precipitate in the first 24 hours.

In the quality control, typical colonial appearances on XLD medium after 18-48 hours of incubation at 30-35°C are described.

Note: in ready to use media (plates), After 24-48h at refrigeration temperature, slight precipitates may appear on the surface. This does not affect the performance of the medium.

**Quality control**

**Incubation temperature:** 30-35 °C

**Incubation time:** 18-48 h

**Inoculum:** Practical range 10 - 100 CFU (productivity)/ 10<sup>2</sup>-10<sup>4</sup>CFU (selectivity) according to Eur. Pharm. harm. Spiral Plate Method.

**Microorganism****Growth****Remarks**

*Staphylococcus aureus* ATCC® 6538

Inhibited

Selectivity

*Salmonella abony* NCTC® 6017

Productivity > 0.50

Colonies & cult. medium red / Black center (H<sub>2</sub>S +)

*Salmonella typhimurium* ATCC® 14028

Productivity > 0.50

Colonies & cult. medium red / Black center (H<sub>2</sub>S +)



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### References

- ATLAS, R.M., L.C. PARK (1993) Handbook of Microbiological Media for the examination of Food. CRC Press Inc. Boca Ratón.
- DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Foods. 4th ed. APHA. Washington DC. USA.
- EUROPEAN PHARMACOPOEIA 10.0 (2020) 10th ed. § 2.6.13. Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. EDQM. Council of Europe. Strasbourg.
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- ICMSF (1978) Microorganisms in Foods 1. University of Toronto Press.
- PASCUAL ANDERSON, M<sup>a</sup> R. (1992) Microbiología Alimentaria. Díaz de Santos, S.A. Madrid.
- TAYLOR, W.J. (1965) Isolation of Shigella. I. Xylose Lysine Agars: New media for isolation of enteric pathogens. Am. J. Clin. Path 44:471-475.
- US FDA (Food and Drug Administrations). (1998) Bacteriological Analytical Manual. 8th ed. Revision A. AOAC International. Gaithersburg, Md. USA.
- USP 33 - NF 28 (2011) <62> Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. USP Corp. Inc. Rockville. MD. USA.

### Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).