XLD Agar EP, USP, JP Formulation

Differential and selective medium for pathogenic enterobacteria isolation, formulated according to Harmonized EP, USP, JP.

TYPICAL FORMULA	(g/l)
L-Lysine	5.0
Xylose	3.5
Lactose	7.5
Sodium Thiosulphate	6.8
Yeast Extract	3.0
Sodium Chloride	5.0
Sucrose	7.5
Ferric Ammonium Citrate	0.8
Sodium Desoxycholate	2.5
Phenol Red	0.08
Agar	13.5
Final pH 7.4 ± 0.2	

DESCRIPTION

XLD AGAR EP, USP, JP Formulation is a selective and medium used for isolating and differentiating Gram-negative enteric bacilli, particularly *Shigella* spp./*Providencia* spp. and *Salmonella* spp, formulated according to Harmonized EP, USP, JP.

PRINCIPLE

Xylose, lactose and sucrose are the fermentable carbohydrates. L-Lysine is an amino acid substrate of the decarboxylase enzyme. Sodium thiosulphate and ferric ammonium are the indicators of the hydrogen sulphide production under alkaline conditions. Phenol red is the pH indicator. Yeast extract is the source of vitamins, particularly of the B-group essential for bacterial growth. Sodium chloride supplies essential electrolytes and maintains the osmotic balance of the medium. Sodium desoxycholate is the selective agent inhibiting Gram-positive microorganisms. Agar is the solidifying agent.

Differentiation of *Salmonella* spp. and *Shigella* spp./*Providencia* spp. from non-pathogenic bacteria is accomplished by three reactions: xylose fermentation, lysine decarboxylation and hydrogen sulphide production. Xylose allows to differentiate *Shigella* spp. and *Providencia* spp., which ferment xylose slowly or not at all, from the other enterics, which ferment xylose rapidly. *Salmonella* spp. is further differentiated from non pathogenic xylose fermenters by the lysine decarboxylase reaction. As xylose is exhausted *Salmonella* spp. decarboxylates lysine causing the elevation of the pH. The production of hydrogen sulphide under alkaline conditions results in formation of colonies with black centres, whereas under acidic conditions, this black precipitation is inhibited.

TECHNIQUE

Faeces or rectal swabs can be plated directly or selective enrichment broths may be used before streaking out. Incubate the plates at 36+/-1°C for 18-24 hours.

INTERPRETATION OF RESULTS

- Degradation of xylose, lactose and sucrose generates acid production, causing the medium turns from red to yellow.
- Hydrogen sulphide production is inhibited if the pH is low, while causes the formation of colonies with black center under alkaline conditions.
- Lysine decarboxylation, in the absence of lactose and sucrose fermentation, results in a reversion to alkaline conditions, causing the medium turns back to red.

Salmonella spp. produces red colonies with black centers. *Shigella* spp. and *Providencia* spp. produce red colonies.

STORAGE AND TRANSPORT CONDITIONS

10-25°C away from light, until the expiry date on the label or until signs of deterioration or contamination are evident.

WARNING AND PRECAUTIONS

The product does not contain hazardous substances in concentrations exceeding the limits set by current legislation and therefore is not classified as dangerous. It is nevertheless recommended to consult the safety data sheet for its correct use. The product is designed for *In vitro* diagnostic use and must be used only by properly trained operators.

DISPOSAL OF WASTE

Disposal of waste must be carried out according to the national and local regulations in force.

REFERENCES

1. Taylor, W.I. 1965. Am. J. Clin. Pathol. 44(4): 471-475.
2. Pollock, H.M., and B.J. Dahlgren. 1974. Appl. Microbiol. 27(1):197-201.
3. Association of Official Analytical Chemists. 1996. Official methods of analysis of AOAC International.
4. Directorate for the Quality of Medicines of the Council of Europe (EDQM). 2007. The European Pharmacopeia, Amended Chapters 2.6 12, 1.6 13, 5.1.4, Council of Europe, 67075 Strasbourg Cedex, France.
5. United States Pharmacopeial Convention. 2007. The United States pharmacopeia 31st ed., Amended Chapters 61, 62, 111. The United States Pharmacopeial Convention, Rockville, MD.
6. Japanese Pharmacopeia. 2007. Society of Japanese Pharmacopeia. Amended Chapters 35.1, 35.2, 7. The Minister of Health, Labor, and Welfare.

LIOFILCHEM® S.r.l.
Via Scozia, Zona Ind.le - 64026, Roseto degli Abruzzi (TE) - ITALY
Tel +39 0858930745 Fax +39 0858930330 Website: www.liofilchem.net E-mail: liofilchem@liofilchem.net

CE IVD

PRODUCT SPECIFICATIONS

NAME
XLD AGAR EP, USP, JP Formulation

PRESENTATION
Ready to use plates (90 mm) containing 22+/-1 ml of medium

STORAGE
10-25°C

PACKAGING

Ref.	Content	Packaging
10413	20 plates	• 10 plates in thermally soldered film • 2 x 10 plates in cardboard box

pH OF THE MEDIUM
7.4 ± 0.2

USE
XLD AGAR EP, USP, JP Formulation is a selective and medium used for isolating and differentiating Gram-negative enteric bacilli, particularly *Shigella* spp./*Providencia* spp. and *Salmonella* spp, formulated according to Harmonized EP, USP, JP

TECHNIQUE
Refer to technical sheet of the product

APPEARANCE OF THE MEDIUM
Red medium, slightly opalescent

SHELFLIFE
6 months

QUALITY CONTROL
1. Control of general characteristics, label and print
2. Sterility control
   7 days at 22 ± 1°C, in aerobiosis
   7 days at 36 ± 1°C, in aerobiosis
3. Microbiological control
   Inoculum for productivity: 10-100 CFU/ml
   Inoculum for selectivity: 10^4-10^5 CFU/ml
   Inoculum for specificity: ≤10^4 CFU/ml
   Incubation Conditions: 18-24 hours at 36± 1°C, in microaerobic atmosphere

Microorganism		Growth	Features
Shigella flexneri	ATCC 12022	Good	Red colonies
Salmonella typhimurium	ATCC 14028	Good	Red colonies with black centers
Enterococcus faecalis	ATCC 29212	Poor	---
Escherichia coli	ATCC 25922	Poor	---

TABLE OF SYMBOLS

LOT Batch code	IVD *In vitro* Diagnostic Medical Device	Manufacturer	Use by	Fragile, handle with care
REF Catalogue number	Temperature limitation	Contains sufficient for <n> tests	Caution, consult instructions for use	Do not reuse

LIOFILCHEM® S.r.l.
Via Scozia, Zona Ind.le - 64026, Roseto degli Abruzzi (TE) - ITALY
Tel +39 0858930745 Fax +39 0858930330 Website: www.liofilchem.net E-mail: liofilchem@liofilchem.net

CE IVD