Agar medium K
(agar medium Xylose-Lysine-Desoxycholate) XLD
(Xylose-Lysine-Desoxycholate) agar medium (XIV)

356-9124
354-1751

DEFINITION
Medium used for the detection and enumeration of Enterobacteria, and notably *Salmonella*, in the analysis of food products and for testing contamination of non-sterile Pharmacopeia products.

Equivalent USP 30/NF 25: Medium XIV

STANDARDS
• ***European Pharmacopeia* 6.0 -** Biological methods - **2.6.13.**: Microbiological test of non-sterile products (Detection of specified micro-organisms)

• **USP 30/NF 25 US Pharmacopeia and National Formulary (2007):** Microbial Limit Tests **(61)** - Microbiological Tests

PRINCIPLE
Several differentiation reactions are revealed in this medium:
- attack by lactose, xylose and/or saccharose: the resulting acidity produced manifests by phenol red turning to yellow.
- production of H_2S: thiosulfate serves as a reactional component while ferric salts serve as indicators by forming of iron sulfide, thus blackening the colonies.
- decarboxylation of the lysine in cadaverin: alkalinization resulting from the amine produced manifests itself by turning the area around LDC-positive colonies red.

PRESENTATION
• **Pre-poured**
90 mm x 20 plates **code 354-1751**

• **Dehydrated**
500g **code 356-9124**

STORAGE
• Pre-poured: +2-8°C
• Dehydrated: +15-25°C, in carefully sealed bottles in a cool, dry place
• Expiration date and batch number are shown on the package.

TYPICAL FORMULA

Yeast extract	3 g
L-lysine hydrochloride	5 g
Saccharose	7.5 g
Lactose	7.5 g
Xylose	3.75 g
Sodium deoxycholate	1 g
Sodium chloride	5 g
Sodium thiosulphate	6.8 g
Ferric ammonium citrate	800 mg
Phenol red	80 mg
Agar	13.5 g
Distilled water	1,000 ml

Final pH (25°C) = 7.4 ± 0.2

NB: the formula has been adapted to attain the required performance criteria.

OTHER PRODUCTS REQUIRED (NOT SUPPLIED)
• Diluent(s)
• Distilled water

EQUIPMENT REQUIRED (NOT SUPPLIED)
(non-exhaustive)
• Scales
• Sterile weighing bags
• Grinder
• Hotplate
• Mixer-homogenizer
• Sterile Petri dishes (Ø = 90 mm)
• Sterile pipettes (code 355-0751) or inoculating loop
• Water-bath precise to ±1°C
• Thermostatically-controlled incubator or incubation room, precise to ±1°C
• All usual laboratory equipment

PREPARATION OF DEHYDRATED MEDIUM
Always shake well before use.
Dissolve 55 g of powder in 1 liter of distilled water. Mix until a homogenous suspension is obtained. Heat gently, swirling frequently, then bring to boiling point until completely dissolved.
Do not prolong heating.
Pour into Petri dishes and leave to dry.

Reconstitution ratio: 55 g/l
500 g of powder makes 9 liters of medium.

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PROTOCOL

• **Preparation of samples**
According to the standards applicable to the product concerned.

• **Enrichment**
According to the standards applicable to the product concerned.

• **Inoculation and incubation**
Inoculate the XLD medium in streaks or by spreading.
Incubate at 37℃ ± 1℃ for 24 to 48 hours.

READING AND INTERPRETATION

Salmonella form well-developed red colonies, with or without a black center. The following table can be used to interpret the reading.

RESULTS OBSERVED	STRAINS
Opaque yellow colonies: (fermentation of at least 2 sugars or of LDC-; sometimes H_2S +)	*Escherichia coli* *Enterobacter* *Klebsiella* *Citrobacter* *Proteus* *Serratia*
Red colonies (fermentation or not of xylose or LDC +)	*Shigella* *Providencia* *Salmonella* H_2S
Red colonies with black center (H_2S +)	*Salmonella* (H_2S+) *Edwardsiella* *Arizona*

PRECAUTION

Comply with Good Laboratory Practice.

QUALITY CONTROL

In view of the current harmonization of pharmacopeias, we recommend that you refer to the certificates of analysis for procedures relating to the quality control (performance and selectivity) of media produced by Bio-Rad.

Every product manufactured and marketed by Bio-Rad is subject to a quality-assurance procedure at all stages, from the reception of raw materials to the marketing of the end-product. Each batch of finished product undergoes quality control and is marketed only if it satisfies the acceptability criteria.

Documentation relative to the production and control of each batch is kept on file.

KEY WORDS

XLD/*Salmonella*/Food products/Detection/ Enumeration/Lactose/Xylose/Saccharose/ H_2S/Decarboxylation/Phenol red/Medium

BIBLIOGRAPHY

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