XLD (XYLOSE-LYSINE-DESOXYCHOLATE) AGAR

INTENDED USE
Remel XLD (Xylose-Lysine-Desoxycholate) Agar is a solid medium recommended for use in qualitative procedures for selective and differential isolation of enteric gram-negative bacilli.

SUMMARY AND EXPLANATION
This medium was developed by Taylor for selective isolation and differentiation of enteric pathogens, especially *Shigella.*[1] XLD Agar has since been found to be a satisfactory medium for the recovery of *Salmonella* spp. from clinical specimens.[2,3]

PRINCIPLE
Xylose is rapidly fermented by most enteric gram-negative bacilli other than *Shigella* spp., producing red colonies. Lysine provides for differentiation of *Salmonella* spp. from nonpathogenic enteric gram-negative bacilli. *Salmonella* produces lysine decarboxylase which causes the pH to revert to alkaline after xylose is fermented, producing red colonies. Lactose and sucrose are added in excess to prevent lysine-positive coliforms from reverting to alkaline conditions. Sodium thiosulfate and ferric ammonium citrate are added to allow for detection of enteric gram-negative bacilli which produce hydrogen sulfide (H_2S) and form black-centered colonies under alkaline conditions. Such organisms include *Salmonella* spp. Organisms which ferment xylose, lactose, or sucrose and are lysine-negative cause an acid pH and produce yellow colonies. Desoxycholate is a selective agent which inhibits gram-positive organisms.

REAGENTS (CLASSICAL FORMULA)*

Lactose	7.5 g	Yeast Extract	3.0 g
Sucrose	7.5 g	Sodium Desoxycholate	2.5 g
Sodium Thiosulfate	6.8 g	Ferric Ammonium Citrate	0.8 g
L-Lysine	5.0 g	Phenol Red	0.08 g
Sodium Chloride	5.0 g	Agar	13.5 g
Xylose	3.5 g	Demineralized Water	1000.0 ml

pH 7.4 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 55 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve. **Do not autoclave.**
3. Cool to approximately 50°C and dispense into plates.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, testing, and interpretation.

QUALITY CONTROL
Each lot number of XLD Agar has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL	INCUBATION	RESULTS
Salmonella enterica serovar Typhimurium ATCC® 14028	Ambient, 18-24 h @ 33-37°C	Growth, red colonies w/ black centers
Shigella flexneri ATCC® 12022	Ambient, 18-24 h @ 33-37°C	Growth, red colonies
Enterococcus faecalis ATCC® 29212	Ambient, 18-24 h @ 33-37°C	Inhibition (partial to complete)
Escherichia coli ATCC® 8739	Ambient, 18-24 h @ 33-37°C	Inhibition (partial; yellow colonies)
Escherichia coli ATCC® 25922	Ambient, 18-24 h @ 33-37°C	Inhibition (partial; yellow colonies)

LIMITATIONS
1. Colonies that resemble *Salmonella* or *Shigella* (e.g., *Pseudomonas* spp., *Proteus* spp.) may grow on XLD Agar; further biochemical and/or serological testing is required for definitive identification of enteric pathogens.[4]
2. Selective and nonselective media should be inoculated to increase the chance of recovering enteric pathogens when the population is low and to provide isolation of other organisms present in the specimen.[3]
3. Some strains of *Proteus* may develop black centers on XLD Agar. Additional testing may be required for definitive identification.[4]

BIBLIOGRAPHY

1. Taylor, W.I. 1965. Am. J. Clin. Pathol. 44:471-475.
2. Isenberg, H.D., S. Kominos, and M. Siegel. 1969. Appl. Microbiol. 18:656-659.
3. Isenberg, H.D. 2004. Clinical Microbiology Procedures Handbook. 2nd ed. ASM Press, Washington, D.C.
4. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, sample collection, storage and transportation, materials required, quality control, and limitations.

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remel

12076 Santa Fe Drive, Lenexa, KS 66215, USA
General Information: (800) 255-6730 Website: www.remel.com Email: remel@remel.com
Local/International Phone: (913) 888-0939 International Fax: (913) 895-4128