



PRODUCT SPECIFICATION SHEET

Xylose Lysine Agar Base (DM296)

Intended Use

Xylose Lysine Agar Base (DM296) is recommended for isolation and identification of pathogenic enteric bacilli.

Product Summary and Explanation

To aid in the selective isolation and differentiation of enteric pathogens, a wide variety of media have been developed. Due to the large numbers of different microbial species and strains with varying nutritional requirements and chemical resistance patterns, investigators have developed various formulae to meet general as well as specific needs relative to isolation and identification of the microorganisms.

XL Agar Base is formulated as per the modifications of Taylor⁽¹⁻⁵⁾ for the selective isolation, differentiation and enumeration of gram-negative enteric bacilli. It is particularly recommended for obtaining counts of enteric organisms. It relies on xylose fermentation, lysine decarboxylation and production of hydrogen sulphide for the primary differentiation of shigellae and salmonellae from non-pathogenic bacteria. This medium can be rendered moderately selective for enteric pathogens, particularly *Shigella*, by the addition of sodium desoxycholate (2.5 g/L) to make XLD Agar. XL Agar Base can be made selective for *Salmonella* by adding 1.25 mL/L of 1% aqueous brilliant green to the base prior to autoclaving. Its use is recommended for *Salmonella* isolation after selenite or tetrathionate enrichment in food analysis; both coliforms and *Shigella* are inhibited.

Principles of the Procedure

Xylose Lysine Agar Base contains yeast extract provides sources of nitrogen, carbon, and vitamins required for organism growth. Xylose, Lactose, and Sucrose, provide sources of fermentable carbohydrate. Xylose is incorporated into the medium because it is fermented by practically all enterics except for the shigellae. This property enables the differentiation of *Shigella* species. Lysine is included to enable the *Salmonella* group to be differentiated from the nonpathogens. Without lysine, salmonellae rapidly would ferment the xylose and be indistinguishable from nonpathogenic species. After the salmonellae exhaust the supply of xylose, the lysine is attacked via the enzyme lysine decarboxylase, with reversion to an alkaline pH, which mimics the *Shigella* reaction. To prevent similar reversion by lysine-positive coliforms, lactose and sucrose (saccharose) are added to produce acid in excess. Degradation of xylose, lactose and sucrose generates acid products, which in the presence of the pH indicator phenol red, causes a color change in the medium from red to yellow. Sodium Chloride maintains the osmotic balance in the medium. To add to the differentiating ability of the formulation, an H₂S indicator system, consisting of sodium thiosulphate and ferric ammonium citrate is added for the visualization of hydrogen sulphide produced, resulting in the formation of colonies with black centers.

Formula / Liter

Ingredients	Gms / Liter
Yeast extract	3.00
L-Lysine	5.00
Lactose	7.50
Sucrose	7.50
Xylose	3.50
Sodium chloride	5.00
Phenol red	0.08
Agar	13.50
Final pH: 7.4 ± 0.2 at 25°C	





PRODUCT SPECIFICATION SHEET

Formula may be adjusted and/or supplemented as required to meet performance specifications

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 45.08 grams of the medium in one liter of distilled water.
2. Heat to boiling, to dissolve the medium completely.
3. Add brilliant green if desired.
4. Autoclave at 118°C for 10 minutes / validated cycle.
5. Cool to 50-55°C and aseptically add 20 ml of sterile aqueous solution containing 34% sodium thiosulphate and 4% ferric ammonium citrate.
6. Mix well and pour into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Light yellow to light pink homogeneous free flowing powder
Prepared Medium	Red coloured clear to very slightly opalescent gel forms in Petri plates
Reaction of 4.51% solution	pH 7.4 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.35% Agar gel

Expected Cultural Response: Cultural characteristics observed with added sterile aqueous solution containing 34% sodium thiosulphate and 4% ferric ammonium citrate after an incubation at 35-37°C for 18-24 hours.

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth	Recovery	Colour of colony
1.	<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	≥50%	yellow
2.	<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	≥50%	yellow
3.	<i>Proteus mirabilis</i> ATCC 25933	50-100	good-luxuriant	≥50%	grey with black centers
4.	<i>Proteus vulgaris</i> ATCC 13315	50-100	good-luxuriant	≥50%	grey with black centers
5.	<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	≥50%	red with black centers
6.	<i>Salmonella Paratyphi A</i> ATCC 9150	50-100	good-luxuriant	≥50%	red
7.	<i>Salmonella Paratyphi B</i> ATCC 8759	50-100	good-luxuriant	≥50%	red with black centers
8.	<i>Salmonella Typhi</i> ATCC 6539	50-100	good-luxuriant	≥50%	red with black centers
9.	<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	≥50%	red with black centers
10.	<i>Shigella dysenteriae</i> ATCC 13313	50-100	good-luxuriant	≥50%	red
11.	<i>Shigella sonnei</i> ATCC 25931	50-100	good-luxuriant	≥50%	red
12.	<i>Shigella flexneri</i> ATCC 12022	50-100	good	≥30%	red

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Stool specimens or rectal swabs may be plated directly. Selective enrichment broths, such as Selenite Broth or Tetrathionate Broth, may be used prior to streaking. Refer to appropriate references for standard test procedures.





PRODUCT SPECIFICATION SHEET

Results

1. Fermentation of xylose, lactose, and sucrose generates acid products, causing a color change in the medium from red to yellow.
2. Phenol Red is used as the acid-base indicator, producing yellow colonies from an acid reaction.
3. Lysine decarboxylation, in the absence of lactose and sucrose fermentation, results in a reversion to an alkaline condition. This alkaline condition causes the color of the medium to change back to red.
4. Refer to appropriate references and standard test procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10- 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. Red, false-positive colonies may occur with *Proteus* spp. and *Pseudomonas* spp.
2. Incubation in excess of 48 hours may lead to false-positive results.
3. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
4. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Xylose Lysine Agar Base

Product Code : DM296

Available Pack sizes : 500gm

References

1. Taylor W. L., 1965, Am. J. Clin. Pathol., 44:471-475.
2. Taylor W. L. and Harris B., 1965, Am. J. Clin. Pathol., 44:476.
3. Taylor W. L. and Harris B., 1967, Am. J. Clin. Pathol., 48:350.
4. Taylor W. L. and Schelhart B., 1967, Am. J. Clin. Pathol., 48:356.
5. Taylor W. L. and Schelhart B., 1968, Am. J. Clin. Pathol., 16:1387.
6. Taylor W. L. and Schelhart B., 1969, Appl. Microbiol., 18:393-395.

Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

Unit 38/39, Kalpataru Industrial Estate,
Off G.B. Road, Near 'R-Mall' , Thane (W) - 400607. M.S. INDIA.
Ph: +91-22-25895505, 4760, 4681. Cell: 9320126789.

Email: micromaster@micromasterlab.com

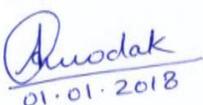
sales@micromasterlab.com

DM296PSS,QAD/FR/024,Rev.00/01.01.2018





PRODUCT SPECIFICATION SHEET

Prepared By	Checked By	Approved By
 01.01.2018	 01.01.2018	 01.01.2018
Microbiologist	Head Quality Control	Head Quality Assurance

Disclaimer :

All Products conform exclusively to the information contained in this and other related Micromaster Publications. Users must ensure that the product(s) is appropriate for their application, prior to use. The information published in this publication is based on research and development work carried out in our laboratory and is to the best of our knowledge true and accurate. Micromaster Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are intended for laboratory, diagnostic, research or further manufacturing use only and not for human or animal or therapeutic use, unless otherwise specified. Statements included herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

