Xylose Lysine Deoxycholate Agar, XLD | AS-1378

Used for isolating pathogenic *Enterobacteria*, especially *Shigella* and *Salmonella* from biological and food samples.

Salmonella species are isolated and presumed to be identified using Xylose Lysine Deoxycholate (XLD) agar, a selective and differential culture medium. Deoxycholate is added to the medium as a selective agent to inhibit the growth of some Gram-negative bacteria and Gram-positive organisms.

XLD agar differentiates between enteric bacteria using a range of biochemical characteristics. Fermentable carbohydrates include xylose, lactose, and sucrose, lysine acts as a substrate for the decarboxylation. To produce hydrogen sulfide, ferric ammonium citrate and sodium thiosulfate are added. Phenol red serves as a pH indicator.

Most *salmonella* species quickly ferment xylose, generating acid and coloring medium yellow. But later lysine decarboxylation raises the pH, which brings about an alkaline condition again. Black-centered colonies may emerge because of hydrogen sulfide generation in these alkaline conditions. The putative identification of *Salmonella* is aided by these distinctive colony morphologies.

Composition (gr/L)

Xylose	3.5
Lactose	7.5
L-Lysine	5
Sucrose	7.5
Yeast Extract	3
Sodium Thiosulphate	6.8
Sodium Chloride	5
Sodium Deoxycholate	2
Phenol Red	0.08
Ferric Ammonium Citrate	0.8
Agar	12
Final pH at 25°C	7.4 ± 0.2

Preparation

Dissolve 53.18 g of the powder into 1 liter distilled water. Heat with agitation to boil for 1 minute. DO NOT OVERHEAT. DO NOT AUTOCLAVE. Cool to 45-50°C in a water bath and pour into plates as soon as the medium has cooled.

Overheating causes precipitation so it is important to avoid preparing large volumes which need prolonged heating.

Quality Control

Dehydrated Appearance: Pink, free-flowing, homogeneous.

Prepared Appearance: Pale red, slightly opalescent.

Reaction of 5.3% Solution at 25°C: pH 7.4 ± 0.2

Microbial Test Results

Incubate at 35 ± 2 °C for 18 to 24 hours. Incubate cultures (**) at 30 to 35°C for 18 to 48 hours and cultures (***) at 35 to 37°C for 18 to 72 hours.

Organism (ATCC)	Recovery	Colony color
Escherichia coli (25922)	Partial inhibition	Yellow
*Escherichia coli** (8739)*	Partial to complete inhibition (30-35°C)	Yellow
Enterococcus faecalis (29212)	Partial inhibition	-
*Salmonella enterica** (14028)*	Growth (30-35°C)	Red with black centers
*Salmonella enterica*** (14028)*	Growth (35-37°C)	Red with black centers

Storage

Keep the container at 15-30 °C and prepared medium at 2-8 °C.