XYLOSE LYSINE DESOXYCHOLATE (XLD) AGAR ISO FORMULATION

Powdered medium for the isolation and differentiation of *Salmonella* spp according to to ISO 6579.

TYPICAL FORMULA (g/l)

Xylose	3.75
L-Lysine	5.00
Lactose	7.50
Sucrose	7.50
Sodium Chloride	5.00
Yeast Extract	3.00
Sodium Desoxycholate	1.00
Sodium Thiosulphate	6.80
Fe-Ammonium Citrate	0.80
Phenol Red	0.08
Agar	14.50

DIRECTIONS FOR POWDERED MEDIUM

Suspend 54.9 g in 1000 ml of cold distilled water, heat to boiling with frequent agitation, cool to 50°C and pour into sterile Petri dishes. Do not overheat or autoclave.
Final pH 7.4 ± 0.2

DESCRIPTION

Xylose Lysine Desoxycholate (XLD) Agar is a selective and differential medium for the isolation of Salmonella spp. from foodstuffs. The medium is prepared according to ISO 6579:2002
Differentiation of Gram-negative enteric bacteria is achieved with XLD Agar on the basis of xylose fermentation, lysine decarboxylation and the production of hydrogen sulphide from the sodium thiosulphate.
The sodium desoxycholate inhibits the growth of Gram-positive microorganisms; the phenol red acts as a pH indicator; the ferric ammonium citrate indicates the production of hydrogen sulphide. *Shigella* does not ferment the xylose, does not cause acidification of the medium, and therefore, grows on XLD Agar with red colonies. *Salmonella* ferments the xylose with acidification of the medium, and decarboxylates the lysine with consequent inversion of the pH of the medium to alkaline values. With the exception of some H_2S-negative species *(S paratyphi A, S.cholerae-suis,* etc.), *Salmonella* also has thiosulphate reductase activity, and therefore, grows on XLD Agar with red colonies with black centres, due to the precipitation of the iron sulphide. Lactose and sucrose are included in the medium to produce an excess of acid, and therefore, differentiate *Salmonella* from lysine decarboxylase-positive coliforms. Some non-pathogenic *Enterobacteriaceae (P. vulgaris, P.mirabilis, Citrobacter)* are H_2S-positive, but do not decarboxylate the lysine; the maintenance of an acid pH prevents the precipitation of the iron sulphide and the blackening of the colonies. *P. mirabilis* grows only rarely in small black-centred colonies which are, however, easily distinguished from *Salmonella* colonies, the latter being large, with big black centres. *P. rettgeri* and *P. morgani* do not produce hydrogen sulphide and do not ferment the xylose; they grow on XLD with red colonies similar to those of *Shigella. Escherichia* and *Enterobacter* ferment the lactose and grow in yellow colonies.

TECHNIQUE

XLD Agar ISO Formulation plates, surface inoculated with the specimen under examination or with the enriched cultures in selective broths, must be incubated for 18-24 hours at 37°C.
Salmonella spp. grow with well developed red colonies with or without black centres.
Shigella spp. grow on XLD Agar with red colonies without black centres.

USER QUALITY ASSURANCE (37°C-24 HRS)
Productivity control
S.enteritidis ATCC 13076*: growth, red colonies with black centres
Selectivity control
E.coli ATCC 25922*: poor growth, yellow colonies
E.faecalis ATCC 29212*: inhibited

*ISO TS 11133-2 recommended strains

STORAGE
Dehydrated media: 10-30°C
User prepared plates: 5 days at 2-8°C

REFERENCE
• ISO 6579:2002 Microbiology of food and animal feeding stuffs -- Horizontal method for the detection of Salmonella spp.

PACKAGING
4022082 XLD Agar ISO Form., 500 g (9.1 l)