

PRODUCT CODE: 413826

XLD Medium (Ph. Eur.) (Dehydrated Culture Media) for microbiology

Preparation

Suspend 55.2 grams of the medium in one litre of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. **AVOID OVERHEATING. DO NOT AUTOCLAVE.** Dispense into appropriate containers. The prepared medium should be stored at 8-15°C.

The colour is reddish-orange. The dehydrated medium should be homogeneous, free-flowing and pink in colour. If there are any physical changes, discard the medium.

Uses

XLD AGAR was developed principally for isolating and differentiating Gram-negative enteric bacilli, particularly *Shigella* and *Salmonella*. It has been shown to be more effective than other enteric differential media.

The reactions that take place are the degradation of the three fermentable carbohydrates: xylose, lactose and sucrose, with the production of acid, manifested in the colour change from red to yellow. Sodium thiosulfate serves as a reactive substance, with Ferric ammonium citrate as an indicator of the formation of hydrogen sulfide under alkaline conditions. Lysine allows the *Salmonella* group to be differentiated from the non-pathogens since, without it, *salmonellae* would quickly ferment the xylose and be indistinguishable from non-pathogenic species.

Once the *salmonellae* consume the xylose, lysine is attacked via the enzyme, lysine decarboxylase, with a reversion to an alkaline pH which is similar to the *Shigella* reaction. The bacteria that decarboxylate the L-Lysine to cadaverine are identified by the presence of a purple red colour around the colonies due to the elevation of the pH. Phenol red is the pH indicator. Yeast extract is the source of vitamins, particularly of the B-group essential for bacterial growth. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Sodium deoxycholate is the selective agent inhibiting Gram-positive microorganisms. Bacteriological Agar is the solidifying agent.

The European Pharmacopoeia, USP recommends inoculating and incubate *Escherichia coli* (indicative) as well as *Salmonella* at 30-35°C for 18-48 hours. It also recommends in Paragraph 2.6.13 "Microbiological examination of non-Sterile products: test for specified microorganisms" to subculture in this medium after incubation in Rappaport Vassiliadis Salmonella Enrichment Broth, at 30-35°C for 18-24 hours and incubate this medium at 30-35°C for 18-48 hours.

Interpretation: The possible presence of *Salmonella* is indicated by the growth of well-developed red colonies, with or without black centres. This is confirmed by identification tests. The product complies with the test if colonies of the types described are not present or if the confirmatory identification tests are negative.

Composition

See in Data Sheet (TDS).

Microbiological Test

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 30-35°C and observed after 18-48 hours.

Microorganism	Growth	Colony Colour
<i>Escherichia coli</i> ATCC 25922	Partially inhibited	Yellow (precipitate)
<i>Escherichia coli</i> ATCC 8739	Partially inhibited	Yellow (precipitate)
* <i>Salmonella typhimurium</i> ATCC 14028	Good	Clear Red (black centre)
<i>Shigella flexneri</i> ATCC 12022	Good	Red
<i>Staphylococcus aureus</i> ATCC 25923	Inhibited	-
<i>Staphylococcus aureus</i> ATCC 6538	Inhibited	-

*According to European Pharmacopoeia Incubate at 30-35 °C for 18-48 h.

Storage

Once opened keep powdered medium closed to avoid hydration.

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