Xylose-Lysine Deoxycholate Agar (XLD Agar) Plate (M900)

Recommended for the isolation for isolation of enteropathogenic species, especially Shigella and Salmonella species.

Composition

Composition (g/l):

Xylose..... 3.750
L-Lysine..... 5.000
Lactose..... 7.500
Sucrose..... 7.500
Sodium chloride..... 5.000
Yeast extract..... 3.000
Phenol red..... 0.080
Sodium Deoxycholate..... 1.000
Sodium thiosulfate..... 6.800
Ammonium ferric citrate.....0.800
Agar..... 15.000

Description

Xylose Lysine Deoxycholate Agar is a selective differential medium, suitable for the detection of enteropathogenic species. A modification in the original formulation of Taylor allows the medium to perform to the specifications of the ISO standards. Gram positive microbiota are inhibited by the low amount of deoxycholate, whilst Shigella grows. Xylose, lactose or sucrose fermentation produce acidification of the medium which is shown by the indicator surrounding the colonies turning yellow. This colour disappears after 24 hours, so readings must be carried out between 18 and 24 hours. Sulfide production from thiosulfate is easily detected because colonies become darker, due to the ferric sulfide precipitate. Lysine decarboxylation to cadaverine may also be observed in the medium, since it produces alkalinization and consequently the indicator turns red.

All these reactions allow a good differentiation of Shigella, which other than Edwarsiella and Proteus inconstans are the only enterobacteria that do not ferment xylose and therefore show a negative fermentation reaction. Salmonella does ferment xylose, but it is consumed quickly and the medium becomes alkaline due to lysine decarboxylation, which may hide the reaction. The difference between Shigella and Salmonella is that the latter colonies become darker due to ferrous sulfide precipitates, which is also a common characteristic of Edwarsiella. Other types of enterobacteria do not suffer this phenomenon, since acid accumulation due to lactose and sucrose fermentation is so great that it avoids pH reversion by decarboxylation and even ferrous sulfide precipitate in the first 24 hours

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines. After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. For professional use only. Follow good microbiological lab practices while handling specimens and culture.

Limitations

1. Individual organisms differ in their growth requirement and may show variable growth patterns.
2. Each lot of the medium has been tested for the organisms specified on the COA.
3. The surface of the medium should be dry when inoculated.

4. Some Proteus strains may give red to yellow colouration with most colonies developing black centers, giving rise to false positive reactions.
5. Non-enterics like Pseudomonas and Providencia may exhibit red colonies.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality control

Physical/Chemical control

Color : Red pH: 7.20-7.60

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Microbiological activity

Organisms	Inoculum CFU/ml	Growth
Salmonella Typhimurium ATCC 14028	50-100	Pink-red with black centre
Salmonella Typhi ATCC 6539	50-100	Pink-red with black centre
Salmonella Paratyphi A ATCC 9150	50-100	Pink-red with black centre
Shigella flexneri ATCC 12022	50-100	Red colonies
Escherichia coli ATCC 25922	50-100	Yellow colonies, Partial Inhibition
Staphylococcus aureus ATCC 25923	50-100	inhibited

Storage and Shelf Life

Store between 2-8°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques.

Reference

1. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
2. Taylor W. L., 1965, Am. J. Clin. Pathol., 44:471-475.
3. Taylor W. L. and Harris B., 1965, Am. J. Clin. Pathol., 44:476.
4. Taylor W. L. and Harris B., 1967, Am. J. Clin. Pathol., 48:350.
5. Taylor W. L. and Schelhart B., 1967, Am. J. Clin. Pathol., 48:356.
6. Taylor W. L. and Schelhart B., 1968, Am. J. Clin. Pathol., 16:1387.
7. MacCarthy M. D., 1966, N. Z. J. Med. Lab. Technol., 20, 127-131.