MicroMedica® Laboratories
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# Technical Data Sheet

## Xylose Lysine Deoxycholate Agar (MML-XLDA-01)

**Principle**

Xylose Lysine Deoxycholate Agar is a differential medium, slightly selective for the detection of pathogenic enterobacteria, especially *Salmonella* and *Shigella*. Media is composed of xylose, lysine, lactose monohydrate, sucrose, sodium chloride, yeast extract, phenol red, sodium deoxycholate, sodium thiosulphate, ferric ammonium citrate and agar. Yeast extract provides sources of nitrogen and carbon, as well as vitamins and cofactors required for growth. Xylose, lactose and sucrose are the carbon source. Xylose is fermented by most enteric organisms except *Shigella* and *Providencia*. Sucrose and lactose provide sources of fermentable carbohydrate. Lysine is also added to differentiate *Salmonella*, which undergoes decarboxylation to cadaverine. Phenol red is pH indicator. Sodium desoxycholate inhibits growth of gram-positive organisms, but *Shigella* grows at this concentration. Sodium chloride maintains osmotic balance in the medium. Agar is a solidifying agent. In medium as the concentration of xylose is declined, the *Salmonella* organism's decarboxylate lysine causing is version to alkaline conditions. The resulted alkaline reversion by lysine-positive organisms is prevented by acid produced by the fermentation of lactose and sucrose. Simultaneously, the sodium thiosulfate is metabolized to hydrogen sulfide and reacts with ferric ammonium citrate which acts as indicator of hydrogen sulfide production under alkaline conditions. The hydrogen sulfide producers are detected by darker colonies, due to the ferric sulfure precipitate. Due to xylose, lactose or sucrose fermentation produce the acidification and lysine decarboxylation to cadaverine causes alkalization and consequently the phenol red indicator turns to red. This color disappears after 24 hours, so observations must be carried out between 18 and 20 hours. The *Shigella* and *Salmonella* are differentiated on basis of ferrous sulfure precipitation. The *Salmonella* colonies show red colored with black centers and *Shigella* are red colored without black center.

**Use**: Recommended for the isolation and enumeration of *Salmonella* and *Shigella* from pharmaceutical products.

**Contents***

| **Ingredients** | **Gram/Litre** |
|---|---|
| Xylose | 3.500 |
| L-Lysine | 5.000 |
| Lactose Monohydrate | 7.500 |
| Sucrose | 7.500 |
| Sodium Chloride | 5.000 |
| Yeast Extract | 3.000 |
| Phenol Red | 0.080 |
| Sodium Deoxycholate | 2.500 |
| Sodium Thiosulphate | 6.800 |
| Ferric Ammonium Citrate | 0.800 |
| Agar | 13.500 |
| pH at 25˚C | 7.4 ±0.2 |

* Formula adjusted for optimum performance and parameters

**Directions:** Dissolve 55.20 grams in 1000 ml purified/ distilled water. Heat until the medium boils with frequent agitation. **Do Not Autoclave or Overheat.** Transfer immediately to a water bath at 50°C. After cooling, pour into sterile petri plates and allow to solidify. Ensure complete solidification and inoculate test sample aseptically.

**Specimens types analyzed**

Pharmaceutical samples, clinical and non-clinical samples etc.

**Precautions to be taken**

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

**Performance and Evaluation**

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

**Quality Control**

| | |
|---|---|
| **Appearance** | Light beige to pink colored homogeneous free flowing powder |
| **Reaction of 4.5% solution** | 7.4±0.2 at 25 ˚C |
| **pH** | 7.20- 7.60 |
| **Gelling** | Firm comparable with 1.35% agar gel |
| **Color and clarity of ready medium** | Red colored clear to slightly opalescent gel |
| **Growth Promotion properties** | Best at ≤ 100 CFU at 32-37 ºC for 18-72 h |
| **Indicative properties** | Optimum at ≤ 100 CFU at 32-37 ºC for 18-48 h |
| **Negative control** | Performed using sterile distilled water |

**Different Microbial Response**

| Organism | Inoculum | Growth | Recovery | Colony color | Incubation temperature & period |
|---|---|---|---|---|---|
| *Salmonella Typhimurium* (ATCC14028) | 50-100 | Luxurious | 70-80% | Red with black centers | 30-37°C, 18-48 h |
| *Shigella flexneri* (ATCC 12022) | 50-100 | Luxurious | 70-80% | Red | 30-37°C, 18-48 h |

**Storage and Shelf Life**

Hygroscopic; keep container tightly closed. Store in cool dry place.

**Disposal**: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

**Reference**


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