# Technical Information

## MUG Tryptone Water

## Product Code: DM 2190

**Application:** - MUG Tryptone Water is recommended for detection of indole producing microorganisms by fluorogenic method.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Casein enzymic hydrolysate | 10.000 |
| Sodium chloride | 5.000 |
| 4-Methylumbelliferyl ß-D-Glucuronide (MUG) | 0.050 |
| Final pH ( at 25°C) | 7.5±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Principle & Interpretation

MUG Tryptone Water is recommended for detection of indole producing organisms by fluorogenic method. Organisms like *Escherichia coli* not only degrade tryptophan and produce indole but also possess the enzyme b-glucuronidase, which cleaves MUG to release 4-methylumbelliferone, which produces blue-green fluorescence under long wave UV light. Test tubes used should be checked under UV light to ensure the glass does not fluoresce.

*Escherichia coli* is a member of the faecal coliform group of bacteria, its presence is indicative of faecal contamination. The traditional IMViC tests are useful for coliform differentiation. The ability of certain microorganisms to breakdown tryptophan with the formation of indole is an important property for identification of bacteria (1, 2). MUG is also added to detect indole producing microorganisms (3) by fluorogenic method.

Casein enzymic hydrolysate acts as a source of essential nutrients and also serves as a source of tryptophan, the substrate for indole reaction. Sodium chloride helps to maintain the osmotic equilibrium of the medium while MUG is the fluorogenic substrate.

## Methodology

Suspend 15.05 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & heat if necessary to dissolve the medium completely. Dispense into tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

## Quality Control

**Appearance**
Cream to yellow homogeneous free flowing powder

**Colour and Clarity**
Light yellow coloured clear solution without any precipitate

**Reaction**
Reaction of 1.50% w/v aqueous solution at 25°C. pH : 7.5±0.2

**pH Range**
7.30-7.70

**Cultural Response**
DM 2190: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organism | Inoculum (CFU) | Growth | Fluorescence (under uv) |
|---|---|---|---|
| *Escherichia coli ATCC 25922* | 50-100 | luxuriant | positive |
| *Enterobacter aerogenes ATCC 13048* | 50-100 | luxuriant | negative |
| *Klebsiella pneumoniae ATCC 13883* | 50-100 | luxuriant | negative |

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.
**Prepared Media**: 2-8° in sealable plastic bags for 2-5 days.

## Further Reading

1. American Public Health Association, 1980, Standard Methods for the Examination of Water and Wastewater, 15th Ed., APHA, Inc., Washington, D.C.
2. Farmer J. J., Davis B. R., Hickman- Brenner F. W., McWhorter A., Huntley- Carter G. P., Asbury M. A., Riddle C., Wathen- hrady H. G., Elias C. and Fanning G. R., 1985, J. Clin. Microbiol., 21:46.
3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

## Disclaimer :

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