Recommended for the identification of bacteria on the basis of urea utilization, specifically for the differentiation of Proteus species from Salmonella and Shigella species.

**Urea Agar base**

|  |  |
| --- | --- |
| REF: LV.1/UA01.100.0100 100 gram REF: LV.1/UA01.250.0250 250 gram |  REF: LV.1/UA01.500.0500 500 gram  |

# CLINICAL SIGNIFICANCE

# Urea Agar Base Media is a slight modification of Christensen formulation (1, 2) and is recommended by BIS (3, 4) for identification of urease activity. Rustigian and Stuart (5) had originally formulated a medium to detect urease activity. These media differentiate between rapid urease positive Proteus species and other urease positive organisms like Citrobacter, Enterobacter and Klebsiella and the bacteria other than Enterobacteriaceae. Christensen observed that addition of peptic digest of animal tissue, dextrose and reduced content of buffer helps to support an early luxuriant growth.

# METHOD PRINCIPLE

# Urea Agar was described by Christensen which detected urease activity by all rapidly urease-positive Proteus organisms and also by other members of Enterobacteriaceae that exhibited a delayed urease reaction. This is accomplished by

# Adding glucose to the medium

# Decreasing the peptone concentration

# Decreasing the buffering system, as a less buffered medium detects even smaller amount of alkali

# MEDIA COMPOSITION

|  |  |
| --- | --- |
| **Item**  | **Formula in g/L**  |
| Peptone Dextrose Sodium chloride Monopotassium phosphatePhenol redAgar  | 1.51520.01215 |

## pH 6.8 ± 0.2 at 25°C

# PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person.

Good Laboratories practices using appropriate precautions should be followed in:

* Wearing personnel protective equipment (overall, gloves, glasses,..).
* Do not pipette by mouth.
* In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries, seek medical advice immediately.
* Handle specimens and inoculated culture bottles as though capable of transmitting infectious agents. All inoculated culture bottles, specimen collection needles, and blood drawing devices should be decontaminated according to country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.

S57: use appropriate container to avoid environmental contamination.

S61: avoid release in environment.

For further information, refer to the Urea Agar Base material safety data sheet.

# MEDIA PREPARATION, STORAGE AND STABILITY

**Lab.Vie**. Urea Agar Base should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

##  PROCEDURE

## Suspend 24.51 grams of the medium in 950 ml of distilled water.

## Heat to boiling to dissolve the medium completely.

## Adjust pH to pH 6.8 ± 0.2 at 25°C

## Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

## Cool to 50°C and aseptically add 50 ml of sterile 40% Urea Solution and mix well.

## Dispense into sterile tubes and allow to set in the slanting position.

## Do not overheat or reheat the medium as urea decomposes very easily.

## Deterioration

**Lab.Vie**. Urea Agar Base is Light pink coloured homogeneous free flowing powder. Prepared Media is Yellowish orange coloured clear gel forms in tubes as slants. If there are any physical changes, discard the medium.

Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), and contaminations.

**SPECIMEN COLLECTION AND PRESERVATION**

# For clinical samples follow appropriate techniques for handling specimens as per established guidelines (11,12). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9,10,13). After use, contaminated materials must be sterilized by autoclaving before discarding.

# TYPE OF SPECIMEN

# Pure isolate from clinical, food and water samples.

# EQUIPMENT REQUIRED NOT PROVIDED

# Sterile cups

# Sterile tubes

# Incubator

# Autoclave

# QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact the technical support.

# PERFORMANCE CHARACTERISTICS

The following organisms are used by us as part of the quality assurance of the product. The total inoculum challenge for each test organism per bottle is 10 to 50 colony forming units (CFU’s).

|  |  |  |
| --- | --- | --- |
| **Microorganism** | **Growth** | **Urease** |
| *Enterobacter aerogenes ATCC 13048* | Luxuriant growth | Negative reaction |
| *Escherichia coli ATCC 25922* | Luxuriant growth | Negative reaction |
| *Salmonella Typhimurium ATCC 14028* | Luxuriant growth | Negative reaction |
| *Klebsiella pneumoniae ATCC 13883* | Luxuriant growth | Positive reaction, cerise colour |
| *Proteus mirabilis ATCC 12453* | Luxuriant growth | Positive reaction, cerise colour |
| *Enterococcus faecalis* ATCC 29212 | Luxuriant growth | Positive reaction, cerise colour |

# REFERENCES

1. Christensen, W.B., 1946, J. Bact., 52:461.
2. MacFaddin J., 1980, Biochemical Tests for Identification of Medical Bacteria, 2nd ed., Williams and Wilkins, Baltimore.
3. Bureau of Indian Standards, IS : 5887 (Part I) - 1976, reaffirmed 1986.
4. Bureau of Indian Standards, IS : 5887 (Part III) - 1999.
5. Rustigian and Stuart, 1941, Proc. Soc. Exp. Biol. Med., 47:108.

|  |
| --- |
| **SYMBOLS IN PRODUCT LABELLING**  |
|   IVD For in-vitro diagnostic use  |   Number of <n> test in the pack  |
|  LOT Batch Code/Lot number  | A black and white triangle with a exclamation mark  Description automatically generated Caution  |
|  REF Catalogue Number  | Do not use if package is damaged   |
|   Temperature Limitation   Expiration Date   Manufactured by  |  Consult Instruction for use      |

 **Ismailia – Free zone, Ismailia – Egypt IFU-S-02, Rev. 03 - December 201**9

**Post code-41511**

 **E-mail :** **admin@labvielab.com**

 **Website:** [**www.labvielab.com**](http://www.labvielab.com)