Urea Agar Base (Christensen)(Autoclavable)

M112

Intended Use:

Urea Agar Base with the addition of Urea is recommended for the detection of urease production, particularly by members of the genus *Proteus* .

Composition**

Ingredients	Gms / Litre
Peptone	1.000
Dextrose (Glucose)	1.000
Sodium chloride	5.000
Disodium phosphate	1.200
Monopotassium phosphate	0.800
Phenol red	0.012
Agar	15.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 24.01 grams in 950 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 10 lbs pressure (115°C) for 20 minutes. Cool to 45-50°C and aseptically add 50 ml of sterile 40% Urea Solution (FD048) 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.

Principle And Interpretation

Urea Agar is used to detect urease production. Urea Agar described by Christensen (1, 4) detected urease activity by all rapidly urease-positive *Proteus* organisms and also by other members of *Enterobacteriaceae* (1) that exhibited a delayed urease reaction (2). This was accomplished by

a) adding glucose to the medium

b) decreasing the peptone concentration , and

c) decreasing the buffering system, as a less buffered medium detects even smaller amount of alkali (3).

Peptic digest of animal tissues is the source of essential nutrients. Dextrose is the energy source. Sodium chloride maintains the osmotic equilibrium of the medium whereas phosphates serve to buffer the medium. Urea is hydrolyzed to liberate ammonia. Phenol red indicator detects the alkalinity generated by visible colour change from orange to pink.

Prolonged incubation may cause alkaline reaction in the medium. A medium without urea serves as negative control to rule out false positive results. Also, all urea test media rely on the alkalinity formation and so they are not specific for determining the absolute rate of urease activity (2). The utilization of proteins may raise the pH to alkalinity due to protein hydrolysis and excess of amino acids liberation results in false positive reaction

Type of specimen

NA

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines(4,5). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines(1,2,8). For water samples, follow

appropriate techniques for sample collection, processing as per guidelines and local standards(3). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/ eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

NA

Performance and Evaluation

Performace 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

Appearance
Light yellow to light pink homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Yellowish orange coloured clear to slightly opalescent gel forms in tubes as slants

Reaction
Reaction of 2.4% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH
6.60-7.00

Cultural Response
Cultural characteristics observed on addition of sterile 40% Urea Solution (FD048) after an incubation at 35-37°C for 18-24 hours.

Cultural Response

Organism	Inoculum (CFU)	Urease
Cultural Response		
Escherichia coli ATCC 25922 (00013*)	50-100	negative reaction, no change
Enterobacter aerogenes ATCC 13048 (00175*)	50-100	negative reaction, no change
Klebsiella pneumoniae ATCC 13883 (00097*)	50-100	positive reaction, cerise colour
Proteus mirabilis ATCC 25933	50-100	positive reaction, cerise colour
Proteus vulgaris ATCC 13315	50-100	positive reaction, cerise colour
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	negative reaction, no change

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store below 30°C in a tightly 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 prevent lump formation due to the

hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

Reference

1. Christensen W. B., 1946, J. Bacteriol., 52:461.
2. MacFaddin J. F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Ed., Williams and Wilkins, Baltimore. Md.
3. Farmer J. J. III, McWhorter A. C., Huntley G. A., Catignani J., J. Clin. Microbiol. 1975: 1 (1): 106-107.
4. MacFaddin J. F, 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore, Md.

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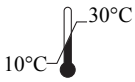
IVD — In vitro diagnostic medical device

CE Marking



Storage temperature


Do not use if package is damaged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