

Technical Information

Urea Agar Base (Filter sterilizable)(w/o Agar)

Product Code: DM 1112A

Application: Urea Agar Base with added agar it is used for detection of urea splitting microorganisms.

Composition**

Ingredients	Gms / Litre
Dextrose	1.000
Peptic digest of animal tissue	1.000
Sodium chloride	5.000
Monopotassium phosphate	2.000
Urea	20.000
Phenol red	0.012
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Urea Agar Base is formulated in accordance with Christensen formulation^(1, 2). Rustigian and Stuart⁽³⁾ had originally devised a medium to detect urease activity. These media were able to differentiate between rapid urease positive *Proteus* species and delay urease positive organisms like *Citrobacter*, *Enterobacter* and *Klebsiella* and 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.

Heavy inoculum of growth is inoculated on the surface of the slants. When urea is utilized, ammonia is formed during incubation which makes the medium alkaline, showing a pink-red colour by the change in the phenol red indicator. Prolonged incubation may cause alkaline reaction in the medium. Check the medium without urea as the negative control to rule out any possibility of false positivity.

Methodology

Suspend 29 grams of powder media in 100 ml distilled water. Mix thoroughly to dissolve completely. Sterilize by filtration. DO NOT BOIL OR AUTOCLAVE. Suspend 15 grams of agar in 900 ml distilled water and dissolve completely by boiling. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Cool to 50-55°C and mix with 100 ml filter sterilized Basal medium. Mix well and aseptically dispense in sterile tubes to prepare a 3 cm slant and 2 cm deep butt. Do not heat or overheat the medium as urea gets decomposed very easily.

Quality Control

Physical Appearance

Light orange coloured homogeneous free flowing powder

Colour and Clarity of prepared medium

Orange coloured clear to slightly opalescent gel as slants.

Reaction

Reaction of the Basal Medium (2.9% w/v aqueous solution) at 25°C. pH : 6.8±0.2

pH Range:- 6.60-7.00

Cultural Response/Characteristics

DM 1112A: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.



Dehydrated Culture Media
Bases / Media Supplements

Organism	Inoculum (CFU)	Growth	Urease
<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	Negative reaction, no change
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	Negative reaction, no change Weakly
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	good-luxuriant	positive
<i>Proteus vulgaris</i> ATCC 13315	50-100	good-luxuriant	Positive reaction, cerise colour
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	Negative reaction, no change

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8⁰ in sealable plastic bags for 2-5 days.

Further Reading

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. Rustigian and Stuart, 1941, Proc. Soc. Exp. Biol. Med., 47:108.

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