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

M112A

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

Directions

Suspend 29.01 grams in 100 ml distilled water. Mix thoroughly to dissolve completely. Sterilize by filteration. 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.

Principle And Interpretation

Urea Agar Base is formulated in accordance with Christensen formulation (1,2). Rustigian and Stuart (3) had originally formulated a medium to detect urease activity. However these media differentiate between rapid urease positive *Proteus* species and other 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 using medium without urea as the negative control.

Quality Control

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
6.60-7.00

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

Cultural Response

Organism	Inoculum (CFU)	Growth	Urease

Cultural Response

Escherichia coli ATCC 25922	50-100	good-luxuriant	Negative reaction, no change
Enterobacter aerogenes ATCC 13048	50-100	good-luxuriant	Negative reaction, no change
Klebsiella pneumoniae ATCC 13883	50-100	good-luxuriant	Weakly positive
Proteus vulgaris ATCC 13315	50-100	good-luxuriant	Positive reaction, cerise colour
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	Negative reaction, no change

Storage and Shelf Life

Store between 2 - 8°C and the prepared medium at 2-8°C. Use before expiry date on the label.

Reference

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.

Revision : 1 / 2011