UREA AGAR BASE W/O AGAR (FILTER STERILIZABLE) TM 629

with added agar used for detection of urea splitting microorganism

Composition

Ingredients	Gms/Ltr.
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

* Dehydrated powder, store in a dry place, in tightly-sealed containers at 24°C and protect from direct Sunlight.

Instructions for Use

Dissolve 29.00 gms in 1000 ml of 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 45 - 50°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.

Appearance: Orange coloured clear to slightly opalescent
PH (at 25°C): 6.8 ± 0.2

Principle

UREA AGAR BASE W/O AGAR (FILTER STERILIZABLE) with added agar used for detection of urea splitting microorganism. This media is formulated in accordance with Christensen formulation. Rustigian and Stuart had originally formulated a medium to detect urease activity. Christensen observed that addition of peptic digest of animal tissue, dextrose and reduced content of buffer helps to support an early luxuriant growth. 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*.

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.

Interpretation

Cultural characteristics observed after inoculation (10^3 CFU/ml) and incubation at 35 - 37°C for 18 - 24 hours.

Microorganisms	ATCC	Inoculum (CFU)	Growth	Urease
Escherichia coli	25922	10^3	Good-luxuriant	Negative reaction, no change
Enterobacter aerogenes	13048	10^3	Good-luxuriant	Negative reaction, no change
Klebsiella pneumoniae	13883	10^3	Good-luxuriant	Weakly positive
Proteus vulgaris	13315	10^3	Good-luxuriant	Positive reaction, cerise colour
Salmonella Typhimurium	14028	10^3	Good-luxuriant	Negative reaction, no change

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