UREA INDOLE BROTH ISO 10273

CAT Nº: 1227

For the differentiation of Enterobacteria on the basis of urease and indol production and the transdeamination of tryphophan (TDA) from clinical samples

FORMULA IN g/l

Urea	20.00	Dipotassium Phosphate	1.00
Sodium Chloride	5.00	Monopotassium Phosphate	1.00
L-Tryptophan	3.00	Phenol Red	0.025

Final pH 6.8 ± 0.2 at 25°C

Escherichia coli ATCC 25922

Proteus vulgaris ATCC 13315

PREPARATION

Suspend 30 grams of the medium in one liter of distilled water .Mix well. Add 10 ml of 95% ethanol. Dispense in 1 - 5 ml amounts into sterile tubes. AVOID OVERHEATING. DO NOT AUTOCLAVE. The prepared medium should be stored at 2-8°C. The color is orange colored.

The dehydrated medium should be homogeneous, free-flowing and pink in color. If there are any physical changes, discard the medium.

USES

UREA INDOLE BROTH can be used for the determination of urease and indole production by Enterobacteriaceae as well as microorganisms of the families of *Brucella*, *Bacillus*, *Micrococcus*, *Mycobacteria* and *Proteus*.

L-Tryptophan is an essential amino acid and is converted to skatole and indole. Sodium chloride maintains the osmotic balance. Potassium phosphates act as a buffer system. Urea is a source of nitrogen for those organisms producing urease. Phenol red is the pH indicator.

Prepare a heavy suspension of the organism isolated from plated media and inoculate the Urea Indole Broth tubes. Incubate at 35 ± 2°C for 18 – 24 hours. Observe at 3 – 4 hours for any positive urease in tubes that turn the indicator a deep violet red color (alkalinization), typical of *Proteus* or *Yersinia*. *Klebsiella* and some *Citrobacter* develop positive tubes after 18 hours.

Indole production is determined by adding a few drops of Kovacs Reagent (Cat. 5205). A positive test is indicated by the development of a red color in the reagent layer. Tryptophan deaminase (TDA) is demonstrated by adding to a 24 hours culture a few drops of a 30% solution, diluted 1:3. of iron perchloride. The appearance of a brown or red-brown color indicates a positive TDA.

ISO 10273 reccomends this medium for the presumptive identification of *Yersinia enterocolitica*. Inoculate and incubate at 30ºC for 24 hours. If the medium is not inoculated with a sufficient quantity of inoculum, it is possible to find false negatives.

CHARACTERISTICS OF THE BACTERIA

Microorganisms	Urea	Indol	TDA
Escherichia coli	-	+	-
Shigella dysenteriae, boydii, flexneri	-	d	-
Shigella sonnei	-	-	-
Salmonella	-	-	-
Salmonella arizonae SG III	-	-	-
Citrobacter	-	-	-
Edwardsiella	-	+	-
Proteus vulgaris	+	+	+
Proteus rettgeri	+	+	+
Proteus morganii	+	+	+
Proteus mirabilis	+	-	+
Providencia	-	+	+
Yersinia enterocolitica	+	d	-
Y. pseudotuberculosis	+	-	-
Klebsiella pneumoniae	+(slow)	-	-
K. oxytoca	+(slow)	+	-
Enterobacter aerogenes	-	-	-
E. cloacae, E. hafniae	-	-	-
E. agglomerans	-	d	-
Serratia marcescens, liquefaciens	-	-	-

d = variable according to different biochemical types

MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35 ± 2°C and observed after 18 - 24 hours.

Microorganisms	Urease	Indole
Escherichia coli ATCC 25922	-	+
Klebsiella pneumoniae ATCC 13883	+	-
Proteus vulgaris ATCC 13315	+	+
Salmonella typhimurium ATCC 14028	-	-
**Yersinia enterocolitica* ATCC 23715	+	±

*Incubate at 30ºC for 24 hours

BIBLIOGRAPHY

Roland F. Bourbon D, Sztrum S. Ann. Inst. Pasteur, 73. 914-916.

ISO 10273 Microbiology of food and animal feeding stuffs — Horizontal method for the detection of presumptive pathogenic *Yersinia enterocolitica*.

ISO

STORAGE

Once opened keep powdered medium closed to avoid hydration.