

TECHNICAL DATA SHEET

MIU Medium Base

(Motility Urea Indole Agar Base)

Principle

Motility urea indole agar base is composed of L-tryptophan, dextrose, sodium chloride, phenol red and agar. L-tryptophan provides essential amino acid. Dextrose is carbon and energy source. Sodium chloride maintains osmotic balance. The medium is fortified with urea, which is substrate for urease enzyme and phenol red is pH indicator dye. The urea hydrolyzing bacteria produce urease enzyme leads to increase in pH of medium, resulting medium turns pink. While non urease producing bacterial medium remain light orange colored. The indole producing bacteria convert L-tryptophan to skatole and indole, which is detected with the help of Kovacs reagent. The appearance of a pink to red color in the reagent is interpreted as a positive indole test. The entire test must be performed in different test tubes. If single tube is inoculated, the results for urease production should be noted prior to indole reaction, as addition of Kovacs reagent, decolorizes the medium, due to drop in pH. The motility is detected by the growth away from stabline.

Use: For detection of motility, urease and indole production.

Contents*

Ingredients	Gram/Litre
L-Tryptophan	10.000
Dextrose	1.000
Sodium Chloride	5.000
Phenol Red	0.010
Agar	2.000

*** Formula adjusted for optimum performance and parameters**

Directions: Dissolve 1.80 grams in 95.00 ml distilled water. Boil to dissolve all the ingredients completely. Sterilize the medium by autoclaving at 121°C for 15 minutes at 15lbs. Allow to at 40-50°C and aseptically add 5 ml of sterile 40% urea solution. Mix well and distribute in sterile test tubes. Allow to solidify in an upright position and inoculate test sample aseptically.

Specimens' types analyzed

Pure and isolated microorganisms etc.

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Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	Light orange to pink colored free flowing, homogeneous powder
Reaction of 1.8% solution	6.8 ±0.2 at 25 °C
pH	6.60- 7.00
Color and clarity of ready medium	Light yellow to orange colored clear solution
Growth Promotion properties	Best at ≤ 100 CFU at 32-37 °C for 18-72 h
Indicative properties	Optimum at ≤ 100 CFU at 32-37 °C for 18-48 h
Negative control	Performed using sterile distilled water

Different Microbial Response

Cultural characteristics observed with added 40% Urea solution after incubation at 35-37°C for 18-24 hours. Inoculum 50-100 CFU.

Organism	Growth	Urease activity	Indole production	Motility
<i>Proteus vulgaris</i> (ATCC 13315)	Luxuriant	Positive reaction (Pink color)	Positive (Pink to red ring at interface)	Positive, growth away from stabline
<i>Proteus mirabilis</i> (ATCC 12453)	Luxuriant	Positive reaction (Pink color)	Negative (No color development)	Positive, growth away from stabline
<i>Salmonella typhimurium</i> (ATCC 14028)	Luxuriant	Negative reaction	Negative (No color development)	Positive, growth away from stabline

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

1. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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