UREA AGAR

INTENDED USE
REMEL's Urea Agar is a solid medium recommended for use in qualitative procedures for the differentiation of microorganisms on the basis of urease activity.

SUMMARY AND EXPLANATION
This medium was developed by Christensen as a solid agar medium for the differentiation of enteric bacilli.[1] Urea Agar differentiates between rapid urea-positive *Proteus* species and other urea-positive members of the *Enterobacteriaceae*.[2] The medium may also be used to determine urease activity of many nonenteric gram-negative bacilli such as *Brucella* and *Bordetella*.[3] It is also useful as an aid to differentiate *Cryptococcus* from other yeast.[4]

PRINCIPLE
This medium contains urea and the pH indicator phenol red. When organisms utilize urea, ammonia is formed which turns the medium alkaline, thereby turning the pH indicator from a pale yellow to pink-red. The peptone and reduced buffer content in this medium promote more rapid growth of many of the *Enterobacteriaceae* and permit a decrease in incubation time. The dextrose in this medium serves to eliminate false-negative reactions and also stimulates urease activity in those organisms which hydrolyze urea slowly.[1] *Proteus* is usually much more active than other enterics and will generally turn the slant and butt red in 2 to 6 hours, whereas less active organisms such as Klebsiella may require a 24-48-hour time period.

REAGENTS (CLASSICAL FORMULA)*

Gelatin Peptone	1.0 g	Urea	20.0 g
Dextrose	1.0 g	Phenol Red	12.0mg
Sodium Chloride	5.0 g	Agar	15.0 g
Monopotassium Phosphate	2.0 g	Demineralized Water	1000.0 ml

pH 6.8 +/- 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 29 g of medium in 100 ml of demineralized water.
2. Mix thoroughly and sterilize by filtration.
3. Dissolve 15 g of agar in 900 ml of demineralized water.
4. Sterilize by autoclaving at 121°C for 15 minutes.
5. Cool to 45-50°C and aseptically add the sterile Urea Agar Base.
6. Mix thoroughly and dispense into sterile tubes.
7. Cool in a slanted position so that deep butts are formed.

PROCEDURE
1. Using a heavy inoculum of growth from an 18-24-hour pure culture, streak back and forth over the Urea Agar slant surface.
2. Do not stab the butt because it serves as a color control.
3. Incubate aerobically, with caps loosened, at 35-37°C in an incubator or water bath.
4. Examine for a pink color development after 2, 6, and 24 hours and daily up to 6 days.

INTERPRETATION OF THE TEST
Positive Test - an intense pink-red color development
Negative Test - no color change

QUALITY CONTROL
All lot numbers of Urea Agar have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

CONTROL	INCUBATION	RESULTS
Proteus mirabilis ATCC® 12453	Aerobic, 24 h @ 35°C	Positive
Cryptococcus neoformans ATCC® 34877	Aerobic, 24-48 h @ 30°C	Positive
Escherichia coli ATCC® 25922	Aerobic, 24 h @ 35°C	Negative

BIBLIOGRAPHY

1. Christensen, W.B. 1946. J. Bacteriol. 52:461-466.
2. Ewing, W.H. 1986. Identification of *Enterobacteriaceae*. 4th ed. Elsevier, New York, NY.
3. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.
4. Larone, D.H. 1993. Medically Important Fungi-A Guide to Identification. 2nd ed. ASM, Washington, D.C.

Refer to the front of the manual for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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