

Urea Broth

Differential medium proposed by RUSTIGIAN and STUART (1941) for detecting microorganisms which metabolize urea.



in vitro diagnosticum –
For professional use only



Principle

Microbiological method

Mode of Action

This culture medium only supports the growth of microorganisms such as *Proteus*, which utilize urea as their sole carbohydrate source (STUART et al. 1945, COOK 1948). FERGUSON and HOOK (1943) recommend this medium for differentiating between *Proteus* and *Salmonella*; it can also be used to differentiate between bacilli and sarcines. Microorganisms which metabolize urea cause the indicator to change its colour to red and the medium may become turbid as a result of microbial growth.

Typical Composition (g/litre)

Yeast extract 0.1; potassium dihydrogen phosphate 9.1; disodium hydrogen phosphate 9.5; urea 20.0; phenol red 0.01.

Preparation and Storage

Usable up to the expiry date when stored dry and tightly closed at +15 to +25 °C. Protect from light.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25 °C.

Suspend 38.5 g/litre, if necessary heat up to a temperature of 60 °C. Sterilize by filtration or dispense aliquots of approx. 3 ml into test tubes and sterilize for 5 minutes in a current of steam under mild conditions.

■ Do not autoclave.

pH: 6.8 ± 0.2 at 25 °C.

The broth is clear and orange-red.

If filter sterilization or heat sterilization is not possible, the medium must be inoculated as soon as it has been prepared.

Specimen

e.g. Isolated bacteria from, stool, urine,

Clinical specimen collection, handling and processing, see general instructions of use.

Quality control

Test strains	Growth	Change to red
<i>Escherichia coli</i> ATCC 25922	poor / fair	-
<i>Salmonella typhimurium</i> ATCC 14028	poor / fair	-
<i>Klebsiella pneumoniae</i> ATCC 13883	poor / fair	-
<i>Proteus vulgaris</i> ATCC 13315	poor / fair	+
<i>Proteus mirabilis</i> ATCC 14153	poor / fair	+
<i>Proteus rettgeri</i> ATCC 29944	poor / fair	+

See also *General Instruction of Use*
Warnings and precautions see *ChemDAT®*
(www.chemdat.info)

Experimental Procedure and Evaluation

Inoculate the medium massively with the pure culture under investigation.

Incubation: up to 48 hours at 35 °C.

Culture medium	Microorganisms
Red	Urea-positive: <i>Proteus</i> (<i>P. vulgaris</i> , <i>P. mirabilis</i>), <i>Morganella</i> , <i>Rettgerella</i> and others
Yellow	Urea-negative or weakly positive: <i>Shigella</i> , <i>Escherichia</i> , <i>Salmonella</i> , <i>Citrobacter</i> , <i>Enterobacter</i> , <i>Klebsiella</i> , <i>Serratia</i> , <i>Providencia</i> and others

Literature

COOK, G.T.: Urease and other biochemical reactions of the *Proteus* group.
- *J. Path. Bact.*, **60**; 171-181 (1948).

FERGUSON, W.W., a. HOOK, A.E.: Urease activity of *Proteus* and *Salmonella* organisms. - *J. Lab. Clin. Med.*, **28**; 1715-1720 (1943).

RUSTIGIAN, R., a. STUART, C.A.: Decomposition of urea by *Proteus*.
- *Proc. Soc. Exptl. Biol. Med.*, **47**; 108-112 (1941).

STUART, C.A., VAN STRATUM, E., a. RUSTIGIAN, R.: Further studies on urease production by *Proteus* and related organisms. - *J. Bact.*, **49**; 437-444 (1945).

Ordering Information

Product	Merck Cat. No.	Pack size
Urea Broth	1.08483.0500	500 g