Columbia Broth

Cat. 1229

For the cultivation of a wide variety of fastidious microorganisms or as a general use broth.

Practical information

Aplications	Categories
Growth	General use

Industry: General cultivation

Principles and uses

Columbia Broth, being highly nutritive, is used for the cultivation of microorganisms in general, as even the most fastidious grow in it. This medium is prepared according to the formulation described by Morello and Ellner in their study of Columbia Broth.

A medium developed for blood cultures, it is superior to commonly used general since it allows a faster growth of Staphylococcus aureus, E. coli and streptococci (Viridans and Enterococcus). Columbia Broth, in the presence of CO2 and supplemented with the anticoagulant SPS (Sodium polyanetholsulfonate), is an excellent blood culture medium.

Peptone mixture and tryptic digest of beef heart provide nitrogen, vitamins, minerals and amino acids essential for growth. Dextrose is the fermentable carbohydrate providing carbon and energy. L-Cysteine HCl is the reducing agent. The medium is buffered with TRIS Aminomethane and TRIS Aminomethane HCl. Ferrous sulfate is added to facilitate organism growth. Magnesium sulfate is a magnesium ion required in a large variation of enzymatic reactions. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Sodium carbonate is a neutralizer that will absorb any toxic metabolites.

Formula in g/L

Dextrose	2,5	Ferrous sulfate	0,02
L-Cysteine hydrochloride	0,1	Peptone mixture	20
Sodium carbonate	0,6	Sodium chloride	5
Magnesium Sulfate Anhydrous	0,1	Tryptic digest of beef heart	3
TRIS hydroxymethyl aminomethane HCL	2,86	TRIS aminomethane	0,83

Preparation

Suspend 35 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Dispense into appropriate containers and sterilize in autoclave at 121°C for 15 minutes.

Instructions for use

Inoculate and incubate at 35±2 ºC for 18-48 hours.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Clear amber, slightly opalescent	7,5±0,2

Microbiological test

Incubation conditions: (35±2 ºC / 18-48 h).

Microrganisms	Specification
Neisseria meningitidis ATCC 13090	Good growth

Streptococcus pyogenes ATCC 19615	Good growth
Staphylococcus aureus ATCC 25923	Good growth
Streptococcus pneumoniae ATCC 6305	Good growth

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

J.A. Morello & P.D. Ellner (1969). New medium for blood cultures. (Appl. Microb. 17: 68-70) H.D. Isenberg (ed) (1992). Clinical microbiology procedures handbook, vol. 1 (American Soc. for Microbiol., Washington, D.C.) P.R. Murray, E.J. Baron, M.A. Pfaller, et al. Manual of clinical microbiology, 6th ed. (American Soc. for Microbiol., Washington, D.C.).