Bordet-Gengou Agar with Charcoal

Cat. 1490

For isolation of Bordetella pertussis from clinical specimens

Practical information

Aplications	Categories
Selective isolation	Bordetella

Industry: Clinical

Principles and uses

Bordet-Gengou Agar with Charcoal is a selective medium used for the isolation of Bordetella pertussis from clinical specimens.

The medium is used in clinical laboratories for the isolation of Bordetella pertussis, the etiologic agent of whooping cough, from nasopharyngeal swabs and other sources of pharyngeal exudate. Bordetella pertussis is a Gram-negative, aerobic coccobacillus capsulate of the genus Bordetella, and the causative agent of pertussis or whooping cough. This medium was developed by as a transport medium for whooping cough specimens, but proved to be useful as an enrichment medium for the selective isolation of B. pertussis and B. parapertussis. It consists of charcoal agar as a basal medium supplemented with cephalexin to inhibit bacteria indigenous to the nasopharynx and defibrinated horse blood to support the growth of Bordetella species. Cephalexin is a cephalosporin antibiotic that inhibits most normal flora of the nasopharynx.

Use of the medium without cephalexin in parallel is recommended, since a few stains (<10%) of B. pertussis will not grow on selective plates; also the nonselective medium is used for subcultures to obtain a larger amount of growth for additional testing, such as agglutination or immunofluorescence testing.

Beef Extract and Casein Peptone provide nitrogen, vitamins, minerals and amino acids essential for growth. Starch in the medium acts as a growth factor, probably functioning like a colloid protector and neutralizes toxic products that form during the development of the organisms. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Charcoal neutralizes fatty acids that are toxic to microorganisms. Cefalexin is added as a selective agent to partially inhibit normal flora from the respiratory system. Niacin is a vitamin which enforces the growth.

Formula in g/L

Bacteriological agar	12	Beef extract	10
Casein peptone	10	Niacin	0,01
Sodium chloride	5	Starch	10
Charcoal	4		

Typical formula g/L * Adjusted and/or supplemented as required to meet performance criteria.

Preparation

Suspend 51 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. Sterilize in autoclave at 121ºC for 15 minutes. Cool to 45-50ºC and aseptically add 0,04 grams of sterile cefaxelin and 7% of sterile horse blood. Homogenize gently and dispense into Petri dishes.

Instructions for use

Inoculate and incubate the sample in medium supplemented in a humid chamber and aerobic conditions at a temperature of 35 ± 2 ° C for 5-7 days.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Black	7,4 ± 0,2

Microbiological test

Incubation conditions: (35 ± 2 ºC, aerobic conditions, humid chamber / 5-7 days)

Microorganisms	Specification
Streptococcus pyogenes ATCC 19615	Inhibited growth
Bordetella pertussis ATCC 9797	Good growth

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

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Bradford W L. Use of convalescent blood in whooping cough. With a review of the literature. Amer J Dis Child 1935; 50: 918-25
Madsen,T. Pertussis in Feroe Islands. Boston Med Surg J 1925; 192: 50
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Additional information

The container of this product may suffer deformation due to the high oxygen adsorption capacity of the activated charcoal contained in the formula.