Schaedler Agar

Cat. 1066

For the cultivation of anaerobic microorganisms from contaminated specimens

Practical information

Aplications	Categories
Growth	Anaerobes
Detection	Anaerobes

Industry: Clinical

Principles and uses

Schaedler Agar is prepared according to the formulation described by Schaedler, Dubos and Costello, and modified by Mata et al. It can easily support the growth of fastidious anaerobes from the intestinal and digestive tracts and other organs without the interference of the accompanying aerobic flora, because of its superior nutritive properties and its low oxidation-reduction potential. In normal conditions, the multiplication of anaerobes is diminished by the rapid increase of enterococci, Escherichia coli, Enterobacter and other intestinal facultative bacteria.

Although thioglycollate is widely used to lower the oxidation-reduction potential favoring the development of anaerobes, it has been proved that it is an inhibitor of other organisms. In this case the medium includes cystine which, along with dextrose, acts as a reducing agent. Trypticasein soy broth, peptone and yeast extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Dextrose is the fermentable carbohydrate that provides carbon and energy. Tris (Hydroxymethyl Aminomethane) acts as a buffer system. Hemin stimulates organism growth. L-Cystine is a reducing agent. Bacteriological agar is the solidifying agent.

Formula in g/L

Bacteriological agar	13,5	Dextrose	5
Hemin	0,01	L-Cystine	0,4
Peptone mixture	5	Yeast extract	5
Trypticasein Soy Broth	10	Tris (Hydroxymethyl Aminomethane)	3

Preparation

Suspend 41,9 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 121 ºC for 15 minutes. Cool to 45-50 ºC and, if desired, add 5% sterile defibrinated blood. Homogenize gently and pour into Petri dishes. Be careful to avoid bubble formation when adding the blood.

Instructions for use

For the cultivation of anaerobic microorganisms:
- Suspend a determined amount of the sample in a known volume of physiological saline solution.
-Take a small aliquot and make serial dilutions.
- Inoculate with a calibrated loop duplicate plates, previously dried, and incubate for the appropriate time and temperature.
- For enumeration, select those plates that contain 30 to 100 colonies.

For the enumeration of Enterococcus faecalis:
Both aerobe and facultative anaerobe varieties of Enterococcus faecalis, which is an indicator of fecal contamination, allow the use of Schaedler Agar in the following manner:
- Inoculate the food sample (frozen, pre-cooked) in suspension by streaking.
- Incubate aerobically at 25 ºC and at 35 ºC for 24 to 48 hours, and count E. faecalis.
- If testing pre-cooked meat, also inoculate the base medium (with neomycin added) to investigate the presence and number of Clostridium welchii.
- Incubate anaerobically.

Schaedler can be used with selective substances for the isolation and recovery of lactobacilli, streptococci, clostridia, Bacteroides, and Flavobacterium from feces and contents of the intestinal tract.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Pale beige	Amber, slightly opalescent	7,6±0,2

Microbiological test

Incubation conditions: (35±2 ºC / 24-48 h).

Microrganisms	Specification	Recovery rate (%)
Clostridium perfringens ATCC 13124	Good growth >50	
Streptococcus pyogenes ATCC 19615	Good growth >50	
Bacteroides fragilis ATCC 25285	Good growth >50	
Clostridium butyricum ATCC 9690	Good growth >50	

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

Schaedler, R.W. Dubos, R. and Costello, R., 1965. The Development of the Bacterial Flora in the Gastrointestinal Tract of Mice. J. Exp. Med. 1965. 122. 59-66. Mata L.J. Carrillo and Villatoro E., 1966.
Fecal Microflora in a Preindustrial Region. Appl. Microbiol, 17. 396:602.