Schaedler Agar

M291

Schaedler Agar is used for the enumeration of various aerobic and anaerobic bacterial species present in the gastrointestinal tract.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	5.670
Proteose peptone	5.000
Papaic digest of soyabean meal	1.000
Yeast extract	5.000
Dextrose	5.830
Sodium chloride	1.670
Dipotassium hydrogen phosphate	0.830
Tris hydroxymethyl aminomethane	3.000
L-Cystine	0.400
Hemin	0.010
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 43.41 grams in 950 ml distilled water. Heat to boiling with frequent agitation to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and add 5% sterile defibrinated blood if desired. Mix well before dispensing. Avoid overheating and photooxidation of the medium, as it will retard the growth of bacteria.

If desired, add rehydrated contents of 1 vial each of Vitamin K1 Supplement (FD114) and CNA Supplement (FD115) to prepare Schaedler CNA Agar or to prepare Schaedler KV Agar, aseptically add rehydrated contents of 1 vial each of Vitamin K1 Supplement (FD114) and KV Supplement (FD116) respectively to 1000 ml of Schaedler Agar.

Principle And Interpretation

Schaedler Agar was originally formulated by Schaedler et al (1) and further modified by Mata et al (2) with formulation changes (3) for cultivation and enumeration of aerobic and anaerobic microorganisms.

Schaedler Agar supplemented with Vitamin K1 and 5% sheep blood is used for the recovery of fastidious anaerobic bacteria such as *Bacteroides* . Inclusion of Colistin and Nalidixic acid in the formulation (Schaedler CNA Agar) along with 5% sheep blood is used for the selective isolation of the anaerobic gram-positive cocci (4), *Peptococcus* and *Peptostreptococcus* species. Inclusion of Kanamycin and Vancomycin in the formulation (Schaedler KV Agar) along with 5% sheep blood is used for selective isolation of gram-negative anaerobes.

Schaedler Agar serve as an excellent basal media to which blood or other enrichments can be added to enhance the recovery of fastidious anaerobic organisms.

The combination of casein enzymic hydrolysate, proteose peptone and papaic digest of soyabean meal, Yeast extract and L-cystine provide nitrogenous growth factors, vitamins and other essential growth nutrients. Dextrose serves as energy source. Hemin and sheep blood stimulates the growth of fastidious microorganisms and stimulates growth of other *Bacteroides* species and gram-positive spore formers (5). Addition of Sodium Polyanethol Sulphonate (SPS) is recommended when using this medium for blood culture (6). It inhibits phagocytosis and neutralizes the antibacterial activity of fresh blood components (7,8). Vitamin K1 enables the cultivation of *Bacteroides melaninogenicus* (9) and stimulates growth of other *Bacteroides* species and gram-positive spore formers (5).

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Light amber coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.34% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH
7.40-7.80

Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours under anaerobic condition.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery
Cultural Response			
Bacteroides fragilis ATCC 25285	50-100	luxuriant	>=50%
Clostridium butyricum ATCC 13732	50-100	luxuriant	>=50%
Clostridium perfringens ATCC 12924	50-100	luxuriant	>=50%
Clostridium sporogenes ATCC 11437	50-100	luxuriant	>=50%
Escherichia coli ATCC 25922	>=10^3	inhibited	0%
Streptococcus pyogenes ATCC 19615	50-100	luxuriant	>=50%

Storage and Shelf Life
Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Reference
1. Schaedler R.W., Dubos R. and Castello R., 1965, J. Exp. Med., 122:59.
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4. Estevez, 1984, Lab Med., 15:258.
5. Finegold et al, 1974, Manual of Clinical Microbiology, 2nd ed., Lennette and others (Eds.), ASM, Washington, D.C.
6. Rosner, 1968, Am. J. Clin. Pathol., 49:216.
7. Garrod, 1966, J. Pathol. Bacteriol., 91:621.
8. Lowrence and Traub, 1969, Appl. Microbiol., 17:839.
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