KF Streptococcus Agar Base

For the detection and enumeration of enterococci (faecal streptococci) in water, foodstuffs and other materials according to KENNER, CLARK and KABLER (1960, 1961).

General Information

KF Streptococcus agar complies with the recommendations given by APHA for the examination of water (1998) and foodstuffs (1992).

Mode of Action

Maltose and lactose are metabolized by most enterococci with the production of acid and thus promote the growth of these bacteria; undesired microorganisms are largely supressed by sodium azide. Acid formation is detected by bromocresol purple which changes its colour to yellow. Enterococci reduce TTC to give a red formazan and thus appear as red colonies.

Typical Composition (g/litre)

Proteose peptone 10.0; yeast extract 10.0; sodium chloride 5.0; sodium glycerophosphate 10.0; maltose 20.0; lactose 1.0; sodium azide 0.4; bromocresol purple 0.015; agar-agar 15.0.

Also to be added:

2,3,5-triphenyltetrazolium chloride 0.1.

Preparation

Suspend 71.5 g in 1 litre of demin. water. Bring to the boil with frequent agitation. Boil for 5 minutes (or autoclave 10 min at 121 °C, if total selectivity is required).

Do not overheat.
Cool to approx. 50°C, add 10 ml of a 1 % TTC solution (2,3,5-triphenyltetrazolium chloride), mix, pour plates.

pH: 7.2 ± 0.2 at 25°C.

The plates are clear and purple.

Experimental Procedure and Evaluation

The membrane filtration method should be used for detection and enumeration if only small numbers of enterococci are suspected to be present; the pour plate method should be employed for larger numbers. The inoculated membrance filters are placed on the agar surface.

Incubation: 48 hours at 35°C aerobically.

Tropical marine water samples should be incubated anaerobically, due to high incidence of false-positive presumptive counts for enterococci.

The red or pink colonies should be counted, the bacterial count can then be calculated.

Appearance of Colonies	Microorganisms
Abundant growth, red colonies, mostly surrounded by a yellow zone	Enterococci (E. faecalis, E. faecalis var. liquefaciens, E. faecalis var. zymogenes), Str. mitis, Str. bovinus, E. equinus, Str. salivarius and others
Usually scanty growth and no colour change	Lact. plantarum, Pediococcus cerevisiae and others

Literature

American Public Health Association: Compendium of methods for the microbiological examination of foods. - 3 rd. ed., 1992.

American Public Health Association: American Water Works Association and Water Pollution Control Federation: Standard Methods for the Examination of Water and Wastewater 20 th ed., Washington, 1998.

KENNER, B.A., CLARK, H.F., a. KABLER F.W.: Faecal streptococci. II. Quantification of streptococci in faeces. **- Am. J. Publ. Health., 50**; 1553-1559 (1960).

KENNER, B.A., CLARK, H.F., a. KABLER F.W.: Faecal streptococci. I. Cultivation and enumeration of streptococci in surface waters. **- Appl. Microbiol., 9**; 15-20 (1961)

Ordering Information

Product	Ordering No.	Pack size
KF Streptococcus Agar Base	1.10707 .0500	500 g
2,3,5-Triphenyltetrazolium chloride	1.08380.0010	10 g

Quality control

Test strains	Growth	Red colonies	Yellow zone
Enterococcus faecalis ATCC 11700	good / very good		
Enterococcus hirae ATCC 8043	good / very good	(poor)	
Enterococcus faecalis ATCC 19433	good / very good		
Streptococcus pyogenes ATCC 12344	none / fair	-	-
Streptococcus agalactiae ATCC 13813	none / fair	-	-
Lactobacillus plantarum ATCC 8014	none / fair	-	-
Escherichia coli ATCC 25922	none		
Enterobacter cloacae ATCC 13047	none		
Pseudomonas aeruginosa ATCC 27853	none		

Enterococcus faecalis ATCC 11700

Streptococcus agalactiae ATCC 13813