17117 Actinomycete Isolation Agar

For isolation and propagation of Actinomycetes from soil and water.

Composition:

Ingredients	Grams/Litre
Sodium caseinate	2.0
L-Asparagine	0.1
Sodium propionate	4.0
Dipotassium phosphate	0.5
Magnesium sulfate	0.1
Ferrous sulfate	0.001
Agar	15.0

Final pH 8.1 +/- 0.2 at 25°C

Store prepared media at 2-8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers below 30°C.

Appearance: Faintly yellow to faint beige to faint brown colored, homogeneous, free flowing powder.
Colour and Clarity: Light yellow to light brown colored, clear to very hazy gel forms in petri plates.

Directions:
Suspend 22 g in 1 litre distilled water containing 5 ml glycerol (Sigma 49767). Boil to dissolve the medium completely. Dispense as desired. Sterilize by autoclaving at 121°C for 15 minutes.

Principle and Interpretation:
Actinomycetes are gram-positive bacteria, which show marked chemical and morphological diversity but form a distinct evolutionary line of organisms that range from coccoid and pleomorphic forms to branched filaments (1). Actinomycetes form an integral part of soil, water and vegetation. Actinomycete development leads to the formation of volatile metabolites(2). Traces of these volatile metabolites are sufficient to impart disagreeable odour to water or a muddy flavour to fish (3). Actinomycetes also cause disruptions in wastewater treatment by forming massive growths, which are capable of producing thick foam in the activated sludge process (4, 5). Actinomyces Isolation Agar used for isolation and propagation of Actinomycetes from soil and water was formulated by Olsen (6).

Actinomycete Isolation Agar contains sodium caseinate as nitrogen source. Asparagine in addition to being an amino acid is also a source of nitrogen. Sodium propionate is used as a substrate in anaerobic fermentation. Dipotassium phosphate provides the buffering system. The sulphates serve as source of sulphur and metallic ions. Glycerol serves as an additional source of carbon.
Inoculate the plates with 1 drop of diluted culture or specimen and spread over the surface using a sterile bent glass rod. Incubate at 35-37°C for 40-72 hours. The media can be used for long term storage after sufficient growth is obtained. Agar slants are used for maintenance of cultures over a shorter period of time.

Cultural characteristics after 40-72 hours at 35-37°C

Organisms (ATCC)	Growth
Nocardia asteroides (19427)	+++
Streptomyces albus subsp (3004)	+++
Streptomyces lavendulae (19247)	+++
Escherichia coli (25922)	-

References:
1. Collee J. G., Fraser A. G., Marmion B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone.
2. Adams B. A., 1929, Water and Water Eng., 31:327.
3. Eaton A. D., Clesceri L. S. and Greenberg A. W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
4. Lechevalier H. A., 1975, Environ. Protection Technol. Ser., EPA-600/ 2-75-031, U. S. Environmental Protection Agency, Cincinnati, Ohio.
5. Lechevalier M. P., and Lechevalier H. A., 1974, Int. J. Syst.Bacteriol., 24:278. 6. Olsen, 1960, Personal Communication.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.