Friis Liquid Medium Base

M1928

Intended Use:

Recommended for the detection of non-avian Mycoplasmas in pharmaceutical products in accordance with European pharmacopoeia.

Composition**

Ingredients	Gms / Litre
Proteose petone	0.821
Peptone	1.508
Yeast extract	6.200
HM infusion from *	16.42
HM infusion B #	28.063
Sodium chloride	5.054
Magnesium sulphate heptahydrate	0.049
Potassium chloride	0.194
Calcium chloride anhydrous	0.068
Magnesium chloride hexahydrate	0.049
Disodium hydrogen phosphate dihydrate	0.036
Disodium hydrogen phosphate	0.205
Potassium hydrogen phosphate anhydrous	0.029
Glucose monohydrate	0.164
Phenol red	0.014
Final pH (at 25°C)	7.40 - 7.45

**Formula adjusted, standardized to suit performance parameters

*- Equivalent to Calf brain infusion

- Equivalent to Beef heart infusion

Directions

Suspend 16.04 grams (the equivalent weight of dehydrated medium) in 800 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Aseptically add 100 ml of Horse serum (RM1239), 100 ml of Swine serum (RM10415) and rehydrated contents of one vial of Friss Selective supplement (FD317). Mix well and dispense as desired.

Principle And Interpretation

Mycoplasmas (mollicutes) are the smallest free-living microorganisms (5). Earlier *Mycoplasmataceae* were given the general title of pleuropneumonia like organism (PPLO), because of similarities to *Mycoplasma* mycoides (subsp. mycoides), the causative agent of bovine pleuropneumonia (1). Although some species are normal human respiratory tract flora, *Mycoplasma pneumonia* is an important cause of pneumoniae and a major cause of respiratory disease. *Mycoplasma hominis, Mycoplasma genitalium* and *Ureaplasma urealyticum* are important colonizers (and possible pathogens) of the human genital tract.

This medium is recommended by European pharmacopoeia (2) for the detection of non-avian mycoplasma. The optimum growth conditions are 35-38°C under microaerophilic conditions.

For the cultivation of *Mycoplasma* the medium ingredients and all the supplements should be free of any toxic substances even in small amounts. Proteose peptone, peptone, yeast extract, HM infusion and HM Infusion B provide nitrogen, vitamins, amino acids and carbon sources. Sodium chloride maintains the osmotic balance. Many *Mycoplasma* require serum which is supplemented by horse serum and swine serum in the medium for their good growth. The presence of antibiotic is necessary to prevent the growth of contaminating organisms. Mostly the *Mycoplasma* species are aerobic or facultatively anaerobic but some are microaerophilic. Sodium chloride maintains the osmotic balance. Phosphates buffer the medium. Other inorganic salts supply the necessary ions.

Type of specimen

Pharmaceutical samples

Specimen Collection and Handling

For pharmaceutical samples follow appropriate techniques for handling specimens as per established guidelines (2). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1.Further biochemical tests should be carried out for confirmation.

Performance and Evaluation

Performace of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Light yellow to pink homogeneous free flowing powder

Colour and Clarity of prepared medium
Light pink coloured clear to slightly opalescent gel forms in tubes.

Reaction
Reaction of 1.60 %w/v aqueous solution at 25°C.

pH
7.40-7.45

Cultural Response
Cultural response observed after addition of 100 ml of Horse serum (RM1239), 100 ml of Swine serum (RM10145) and rehydrated contents of one vial of Friss Selective Supplement (FD317) after an incubation at 35-38°C for 48 hours to one week under microaerophilic condition.

Organism	Growth
Acholeplasma laidlawii ATCC 23206	good-luxuriant
Mycoplasma gallisepticum NCTC 10115	good-luxuriant
Mycoplasma hyorhinis NCTC 10130	good-luxuriant
Mycoplasma orale ATCC 23714	good-luxuriant
Mycoplasma pneumoniae ATCC 15531	good-luxuriant

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Reference

1.Collee J.G, Fraser A.G., Marmion B.P., Simmons. A (Eds.), 1996, Mackie and McCartney Practical Medical Microbiology, 14th Ed, Churchill Livingstone.

2.European Pharmacopoeia, 2016, European Dept. for the quality of Medicines

3.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

4.Jorgensen, J.H., Pfaller , M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1

5.Murray P.R., Baron E. J., Pfaller M.A., Tenover F.C., Yolken R.H.(Eds.),1995, Manual of Clinical Microbiology, 6th Ed., ASM Press.

6.Tauraso, Nicola M., 1967: Effect of diethylaminoethyl dextran on the growth of *Mycoplasma* in agar. J Bacteriol: 1559-1564

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