Perfringens Agar Base (T. S. C. /S. F. P. Agar Base) M837

Perfringens Agar Base with the addition of selective supplement and enrichment is used for the presumptive identification and enumeration of *Clostridium perfringens* from food.

Composition**

Ingredients	Gms / Litre
Tryptose	15.000
Beef extract	5.000
Papaic digest of soyabean meal	5.000
Yeast extract	5.000
Sodium metabisulphite	1.000
Ferric ammonium citrate	1.000
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 23.5 grams in 475 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°) for 15 minutes. Cool to 50°C. Add 25 ml of Egg Yolk Emulsion (FD045) and rehydrated contents of 1 vial of S.F.P. Supplement (FD013) / T.S.C. Supplement (FD014). Alternatively if fluorogenic detection is desired add rehydrated contents of Clostridium perfringens supplements (FD243) instead of FD013 / FD014. Mix well before pouring into sterile Petri plates.

Principle And Interpretation

Tryptose Sulphite Cycloserine Agar (TSC) was originally formulated by Harmon et al (1) for the enumeration of *C.perfringens* from food. TSC Agar has been documented as one of the most useful media for the quantitative recovery of *C. perfringens* while suppressing growth of other facultative anaerobes (2). Perfringens Agar Base is also recommended by APHA (3). Perfringens Agar Base can be made selective either by addition of D-cycloserine (FD014) (1, 2) or Kanamycin and Polymyxin B (FD013) (4). TSC Agar Base (with FD014) or SFP Agar Base (with FD013) is comparable in performance for isolation of *C. perfringens* (5, 6).

Tryptose, papaic digest of soyabean meal, yeast extract, beef extract provide nitrogenous compounds, carbon, sulphur, vitamin B complex and trace elements essential for clostridial growth. Sodium metabisulphite and ferric ammonium citrate act as an indicator of sulphite reduction, indicated by black coloured colonies. D-Cycloserine (FD014), Kanamycin and Polymyxin B (FD013) help in the selective isolation of *C.perfringens* by inhibiting accompanying flora. Egg yolk emulsion serves as a source of lecithin utilized by *C.perfringens* (M837).

Quality Control

Appearance
Light yellow to brownish yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Basal medium :Amber coloured clear to slightly opalescent gel. After Addition of Egg Yolk Emlusion (FD045) : Yellow coloured opaque gel forms in Petri plates

Reaction
Reaction of 4.7% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH
7.40-7.80

Cultural Response

Cultural characteristics observed under anaerobic condition with added TSC Supplement (FD014)/S.F.P Supplement (FD013)/Clostridium Perfringens Supplement (FD243) and Egg Yolk Emulsion (FD045), after an incubation at 35-37°C for 18-24 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Sulphite Reduction	Lecithinase/ Haloes	Fluorescence
Cultural Response						
Clostridium perfringens ATCC 12924	50-100	luxuriant	>=50%	positive, blackening of medium	Positive reaction, opaque zone around the colony	Positive Reaction
Clostridium sordellii ATCC 9714	>=10^3	inhibited	0%			

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. Harmon S. M., Kauttar D.A. and Peiler J. T., 1971, Appl. Microbiol., 22:688.
2. Harmon S. M. and Kautter D.A., 1987, J. Asso. Off. Anal. Chem., 70: 994.
3. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
4. Shahidi S. A. and Ferguson A R., 1971, Appl. Microbiol., 21,500
5. Horwitz, (Ed.), Official Methods of Analysis of AOAC International, 17th Ed., AOAC International, Gaithersburg, Md.
6. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

Revision : 2 / 2015