Phenol Red Tartrate Agar

M872

Phenol Red Tartrate Agar is recommended for identification and differentiation of *Salmonella* species on the basis of tartrate utilization

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Sodium potassium tartrate	10.000
Sodium chloride	5.000
Phenol red	0.024
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 40.02 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense into tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Allow the tubed medium to cool in an upright position.

Principle And Interpretation

Phenol Red Tartrate Agar was originally formulated by Brown et al (1) and further modified by Jordon and Harmon (2), for the differentiation of *Enterobacteriaceae* especially *Salmonella* species. This medium can also be used to differentiate *V. parahaemolyticus* (positive) from *Aeromonas* species (negative) (3). Phenol Red Tartrate Agar with the addition of sodium chloride (25.0 g/l) can be used to differentiate halophilic *Vibrio* species e.g. *V. parahaemolyticus* , *V. vulnificus* , *V. aglinolyticus* and *V. metschnikovii* . On this medium, an acidic reaction is produced by *Salmonella Enteritidis* , *Salmonella Choleraesuis* , *Salmonella Typhi* , *Salmonella Typhimurium* , *Escherichia coli* , and *Proteus vulgaris* . However organisms like *Salmonella Paratyphi A* and *Salmonella Schottmuelleri* produce an alkaline reaction due to non-utilization of tartrate.

Peptic digest of animal tissue in the medium provide the essential growth nutrients like nitrogenous compounds to the organisms. Sodium potassium tartrate is used most frequently because it is easy to be utilized by the organism. Tartrate utilization (fermentation) yields an acidic reaction, which is indicated by the yellow colour formation at the bottom of the tube. Phenol red acts as the pH indicator while sodium chloride maintains the osmotic balance of the medium.

Inoculum should be taken from a liquid or broth suspension (3).

Quality Control

Appearance
Light yellow to pink coloured homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Red coloured clear to slightly opalescent gel forms in tubes as butts

Reaction
Recation of 4.0% 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 24-48 hours (may be upto 72 hours) .

Organism	Growth	Reaction
Escherichia coli ATCC 25922	luxuriant	positive reaction, yellow colour in the lower portion of the tube
Salmonella Schottmuelleri ATCC 10719	luxuriant	Acid Production, - negative reaction, Pink colour
Salmonella Typhimurium ATCC 14028	luxuriant	Acid Production, + positive reaction, yellow colour
Salmonella Enteritidis ATCC 13076	luxuriant	positive reaction, yellow colour in the lower portion of the tube
Salmonella Schottmuelleri ATCC 10719	luxuriant	negative reaction
Salmonella Typhimurium ATCC 14028	luxuriant	positive reaction, yellow colour in the lower portion of the tube
Salmonella Typhi ATCC 6539	luxuriant	positive reaction, yellow colour in the lower portion of the tube
Edwardsiella tarda ATCC 15947	luxuriant	negative reaction
Proteus vulgaris ATCC 13315	luxuriant	positive reaction, yellow colour in the lower portion of the tube
Klebsiella pneumoniae ATCC 13883	luxuriant	positive reaction, yellow colour in the lower portion of the tube
Salmonella Paratyphi A ATCC 9150	luxuriant	negative reaction
Salmonella Paratyphi B ATCC 8739	luxuriant	negative reaction
Aeromonas hydrophila ATCC 7966	luxuriant	negative reaction
Vibrio parahaemolyticus ATCC 17802	luxuriant	positive reaction, yellow colour in the lower portion of the tube

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. Brown H.C., Duncan J.T. and Henry T.A., 1924, J.Hyg. (Camb.), 23:1.
2. Jordon E.O. and Harmon, P.H., 1928, J. Infect. Dis., 42:238.
3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol.1, Williams and Wilkins, Baltimore.

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