



MP-7 Medium

M597

MP-7 Medium is used for the cultivation of pectinolytic microorganisms especially those producing pectate lyase.

Composition**

Ingredients	Gms / Litre
Pectin	5.000
Monopotassium phosphate	4.000
Disodium phosphate	6.000
Ammonium sulphate	2.000
Yeast extract	1.000
Ferrous sulphate	0.001
Magnesium sulphate	0.200
Calcium chloride	0.001
Boric acid	0.00001
Manganese sulphate	0.00001
Zinc sulphate	0.00007
Copper sulphate	0.00005
Molybdenum trioxide	0.00001
Agar	15.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 33.2 grams in 1000 ml. distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Note : Due to presence of various inorganic salts, slight precipitate may develop after heating. Shake well before pouring into sterile petri plates.

Polysaccharride precipitant solution : Dissolve 1.0 gm of hexadecyltrimethyl ammonium bromide in 100 ml of water and the solution is sterilized by autoclaving if desired.

Principle And Interpretation

Pectin is an important cell wall component of higher plants that helps in cementing plant cells together. Most pectin-degrading organisms are associated with raw agricultural products and with soil. These organisms are known as pectinolytic organisms since they possess pectin lyase that degrades pectin. Detection of pectinolytic activity of an organism is carried out either by observing depression in the gel around the colony where the substrate has been degraded or by flooding the plate with a precipitant solution.

MP-7 Medium is used for detecting pectinolytic organisms especially those producing pectate lyase. MP-7 medium is recommended by APHA for detecting pectinolytic organisms (1).

Detection of polygalactouronase by plate assay is generally done by lowering the pH of the medium, designed for detection of pectate lyase, (i.e. MP-7 Medium) to 6 or below so that polygalactouronase will be active and pectate lyases will be inactive (2, 3). A 1.0% aqueous solution of hexadecyltrimethyl ammonium bromide (4) is used to detect pectinolytic activity. After incubating the plates for 2-3 days at 30-35°C, the polysaccharride precipitant is poured over the surface of the plate taking care not to dislodge the colonies. Zones of pectin hydrolysis will be visible usually within few minutes and can be best viewed against dark background. The reagent precipitates the intact pectin in the medium whereas pectinolytic growth is surrounded by a clear halo in an opaque medium. High phosphate level in the medium is required to observe pectinolytic activity.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Yellow coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 3.32% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 3-5 days.

Cultural Response**Organism****Pectate lyase production****Cultural Response**

Erwinia carotovora ATCC 15713 positive , clear halo around the colony when flooded with 1% polysaccharide precipitant.

Erwinia chrysanthemi ATCC 11663 positive , clear halo around the colony when flooded with 1% polysaccharide precipitant.

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

- Downes F. P. and Ito K. (Eds.), 2001, Compendium for the Microbiological Examination of Foods, 4th Ed. APHA, Washington, D.C.
- Hankin L. and Anagnostakis S. L., 1975, Mycologia 67:597.
- Vaughn R. H., Balatsouras G. D., York G. K. II and Nagel C. W., 1957, Food Res. 22:597.
- Jayasankar N. P. and Graham P. H., 1970, Can J. Microbiol., 16:1023.

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