# Technical Information

## MP-7 Medium

## Product Code: DM 1597

**Application: -** MP-7 Medium is recommended 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

## Principle & Interpretation

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

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.

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.

## Methodology

Suspend 33.2 grams of dehydrated powder media in 1000 ml. distilled water. Mix thoroughly & heat to boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Shake well before 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.

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

## Quality Control

**Appearance**
Cream to yellow homogeneous free flowing powder

**Gelling**
Firm, comparable with 1.5% Agar gel

**Colour and Clarity**
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 Range**
7.00-7.40

**Cultural Response**
DM 1597: Cultural characteristics observed after an incubation at 35-37°C for 3-5 days.

| Organism | Polygalacturonase production |
|---|---|
| *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

**Dried Media:** Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.
**Prepared Media**: 2-8° in sealable plastic bags for 2-5 days.

## Further Reading

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

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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