TM 2212 - MP-5 MEDIUM

INTENDED USE

For detection of pectinolytic microorganisms especially those producing polygalacturonase.

PRODUCT SUMMARY AND EXPLANATION

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. 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-5 Medium is used for the detection of pectinolytic organisms especially those producing polygalactouronase. MP-5 medium is recommended by APHA for detecting pectinolytic organisms.

COMPOSITION

Ingredients	Gms / Ltr
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

PRINCIPLE

The medium consists of yeast extract which provide necessary compounds required for microorganism growth. Phosphate present in the medium provides buffering action in the medium. Sulphates provides necessary ions in the medium. Agar act as a solidifying agent in the medium.

The acidic pH of MP-5 Medium is the main parameter used to distinguish polygalactouronase producers from pectate lyase producers. A 1.0% aqueous solution of hexadecyltrimethyl ammonium bromide is used to detect pectinolytic activity. After incubating the plates for 2-3 days at 30-35°C, the polysaccharide 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.

INSTRUCTION FOR USE

- Dissolve 33.2 grams in 1000 ml. distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121oC) for 15 minutes.
- Mix well and pour 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.

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

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder.
Appearance of prepared medium : Yellow coloured clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 5.5±0.5

INTERPRETATION

Cultural characteristics observe after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Polygalacturonase production	Incubation Temperature	Incubation Period
Aspergillus brasiliensis	16404	10-100	Positive, clear halo around the colony when flooded with 1% polysaccharide precipitant.	35-37°C	2-3 Days
Fusarium moniliforme	-	10-100	Positive, clear halo around the colony when flooded with 1% polysaccharide precipitant.	35-37°C	2-3 Days

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

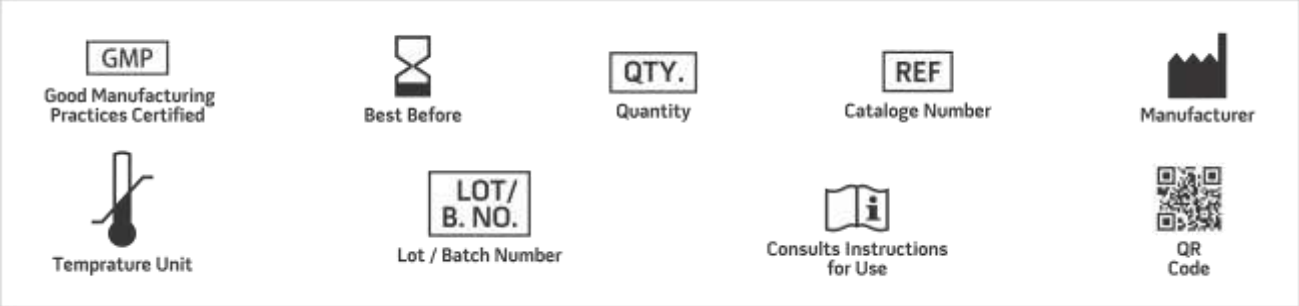
DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

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. Microbiol., 16:1023.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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