MYP Agar
Antimicrobic Vial P

Intended Use

MYP Agar is used with Egg Yolk Enrichment 50% and Antimicrobic Vial P for enumerating *Bacillus cereus* from foods.

Summary and Explanation

Mossel et al.[1] formulated Mannitol-Egg Yolk-Polymyxin (MYP) Agar to isolate and enumerate *Bacillus cereus* from foods. This medium differentiates *B. cereus* from other bacteria based on its resistance to polymyxin, lack of mannitol fermentation and presence of lecithinase.[2,3] *B. cereus* is commonly found in nature, on vegetables and in some processed foods.[4] Under favorable circumstances the microorganism grows to sufficient numbers and causes gastrointestinal illness.[4] Outbreaks of foodborne illness have been associated with boiled and cooked rice, cooked meats and cooked vegetables.[5]

MYP Agar is a recommended medium for testing foods.[4-6]

Principles of the Procedure

MYP Agar contains beef extract and peptone as sources of carbon, nitrogen, vitamins and minerals. D-Mannitol is the carbohydrate source. Phenol red is the pH indicator. Agar is the solidifying agent. Egg Yolk Enrichment 50% provides lecithin. Antimicrobic Vial P is polymyxin B which inhibits the growth of most other bacteria.

Bacteria that ferment mannitol produce acid products and form colonies that are yellow. Bacteria that produce lecithinase hydrolyze the lecithin and a zone of white precipitate forms around the colonies. *B. cereus* is typically mannitol-negative (pink-red colonies) and lecithinase-positive (zone of precipitate around the colonies).

User Quality Control

Identity Specifications

Difco™ MYP Agar

Dehydrated Appearance:	Pink, free-flowing, homogeneous.
Solution:	46 g soluble in 900 mL purified water upon boiling. Solution is red, slightly opalescent.
Prepared Appearance:	Red, very slightly to slightly opalescent without significant precipitate.
Reaction of 46 g/900 mL at 25°C:	pH 7.2 ± 0.1

Difco™ Antimicrobic Vial P

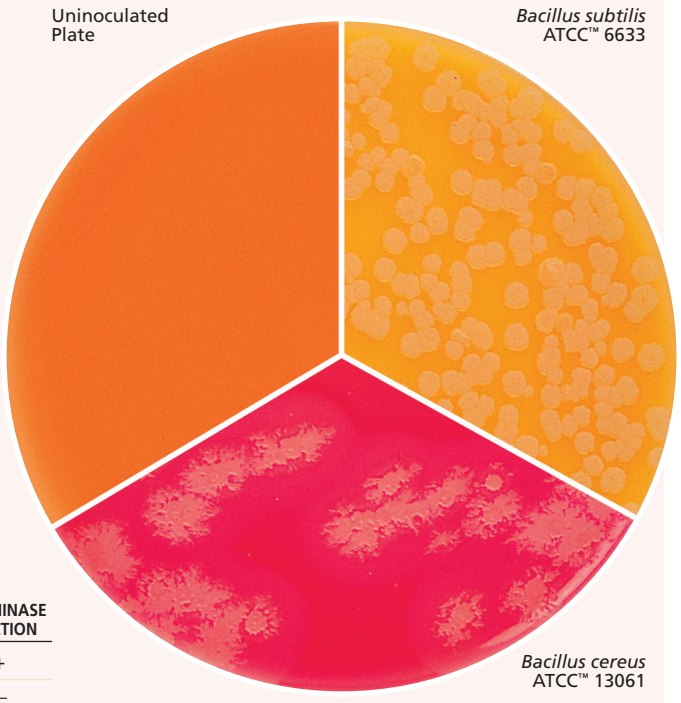
Dehydrated Appearance:	White cake or powder.

Cultural Response

Difco™ MYP Agar

Prepare the medium per label directions. Supplement with Egg Yolk Enrichment 50% and Antimicrobic Vial P. Inoculate and incubate at 30 ± 2°C for 18-48 hours. Lecithinase reaction is read as a zone of precipitate. Colonies that ferment mannitol are yellow.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	MANNITOL FERMENTATION	LECITHINASE REACTION
Bacillus cereus	13061	30-300	Good	–	+
Bacillus subtilis	6633	30-300	Good	+	–
Pseudomonas aeruginosa	27853	10^3-2×10^3	Inhibition	–	–



Formulae

Difco™ MYP Agar

Approximate Formula* Per 900 mL

Beef Extract	1.0	g
Peptone	10.0	g
D-Mannitol	10.0	g
Sodium Chloride	10.0	g
Phenol Red	25.0	mg
Agar	15.0	g

Difco™ Antimicrobic Vial P

Approximately 30,000 units polymyxin B per vial.

**Adjusted and/or supplemented as required to meet performance criteria.*

Directions for Preparation from Dehydrated Product

Difco™ MYP Agar

1. Suspend 46 g of the powder in 900 mL of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Dispense 225 mL into 500 mL flasks.
4. Autoclave at 121°C for 15 minutes. Cool to 45-50°C.
5. Aseptically add 12.5 mL Egg Yolk Enrichment 50% and 4.1 mL Antimicrobic Vial P rehydrated with 5 mL sterile water (25,000 units of polymyxin B). Mix thoroughly.
6. Test samples of the finished product for performance using stable, typical control cultures.

Difco™ Antimicrobic Vial P (Polymyxin B)

1. To rehydrate, aseptically add 5 mL sterile purified water (to achieve the desired concentration for MYP Agar).
2. Rotate in an end-over-end motion to dissolve the contents completely.

Procedure

Consult appropriate references.[4-6]

Expected Results

Consult appropriate references.[4-6]

References

1. Mossel, Koopman and Jongerius. 1967. Appl. Microbiol. *15*:650.
2. Donovan. 1958. J. Appl. Bacteriol. *21*:100.
3. Coliner. 1948. J. Bacteriol. *55*:777.
4. U.S. Food and Drug Administration. 2001. Bacteriological analytical manual, online. AOAC International, Gaithersburg, Md.
5. Bennett and Belay. 2001. *In* Downes and Ito (ed.), Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
6. Horwitz (ed.). 2007. Official methods of analysis of AOAC International, 18th ed., online. AOAC International, Gaithersburg, Md.

Availability

Difco™ MYP Agar

AOAC BAM COMPF ISO USDA

Cat. No. 281010 Dehydrated – 500 g

Europe

Cat. No. 257004 Prepared Plates – Pkg. of 20*

Japan

Cat. No. 251264 Prepared Plates – Pkg. of 20*

Difco™ Antimicrobic Vial P

AOAC BAM COMPF ISO USDA

Cat. No. 232681 Vial – 6 × 10 mL*

Difco™ Egg Yolk Enrichment 50%

AOAC BAM COMPF ISO USDA

Cat. No. 233471 Tube – 12 × 10 mL*

233472 Bottle – 6 × 100 mL*

**Store at 2-8°C.*