McClung Toabe Agar Base Egg Yolk Enrichment 50%

Intended Use

McClung Toabe Agar Base is used with Egg Yolk Enrichment 50% for isolating and detecting *Clostridium perfringens* in foods based on the lecithinase reaction.

Summary and Explanation

McClung and Toabe¹ formulated a medium for isolating *C. perfringens* from foods. With the addition of 50% egg yolk emulsion, *C. perfringens* and a few other *Clostridium* species show the lecithinase reaction.

User Quality Control

Identity Specifications Difco[™] McClung Toabe Agar Base

Dehydrated Appearance: Very light beige, free-flowing, homogeneous.

Solution:	7.5% solution, soluble in purified water upon boiling. Solution is light amber, slightly opales- cent, with a precipitate.		
Prepared Appearance:	Plain – Light amber, opalescent with precipitate. With Egg Yolk Enrichment – Light yellow, opaque.		
Reaction of 7.5% Solution at 25°C:	pH 7.6 ± 0.2		
Difco™ Egg Volk Enrichment 50%			

Difco[™] Egg Yolk Enrichment 50%

Appearance:

Canary yellow, opaque liquid with a resuspendable precipitate.

Cultural Response Difco™ McClung Toabe Agar Base with Egg Yolk Enrichment 50%

Prepare the medium with Egg Yolk Enrichment 50% per label directions. Inoculate and incubate at $35 \pm 2^{\circ}$ C for 18-48 hours. Incubate the clostridia anaerobically.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	LECITHINASE REACTION
Clostridium perfringens	12919	10 ² -10 ³	Good	Opaque halo
Clostridium perfringens	12924	10 ² -10 ³	Good	Opaque halo
Staphylococcus aureus	25923	10 ² -10 ³	Good	None
Staphylococcus epidermidis	14990	10 ² -10 ³	Good	None

C. perfringens is found in raw meats, poultry, dehydrated soups and sauces, raw vegetables and other foods and food ingredients, but occurrences of food borne illness are usually associated with cooked meat or poultry products.² Spores of some strains that may resist heat during cooking germinate and grow in foods that are not adequately refrigerated.³ Enumerating the microorganism in food samples plays a role in epidemiological investigation of outbreaks of food borne illness.²



Principles of the Procedure

McClung Toabe Agar Base contains peptone as a source of carbon, nitrogen, vitamins and minerals. Dextrose is the carbohydrate source. Sodium chloride provides essential ions. Magnesium sulfate provides divalent cations and sulfate. Disodium phosphate and monopotassium phosphate maintain pH balance and provide a source of phosphates. Agar is the solidifying agent. Egg Yolk Enrichment 50% provides egg yolk lecithin. Lecithinase-producing clostridia, such as C. perfringens, hydrolyze the lecithin and produce opaque halos.

Formulae

Difco[™] McClung Toabe Agar Base

Approximate Formula* Per Liter g g Disodium Phosphate5.0 g Monopotassium Phosphate1.0 g Sodium Chloride2.0 g Magnesium Sulfate 0.1 g g

Difco[™] Egg Yolk Enrichment 50%

Concentrated egg yolk emulsion.

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

Directions for Preparation from Dehydrated Product

Difco[™] McClung Toabe Agar Base

- 1. Suspend 75 g of the powder in 1 L of purified water. Mix thoroughly.
- 2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.

- 3. Dispense 90 mL amounts into flasks and autoclave at 121°C for 15 minutes.
- 4. Cool to 50°C and aseptically add 10 mL of Egg Yolk Enrichment 50% to each 90 mL of base. Mix thoroughly.
- 5. Dispense into sterile Petri dishes in approximately 15 mL amounts.
- 6. Test samples of the finished product for performance using stable, typical control cultures.

Difco[™] Egg Yolk Enrichment 50%

Shake gently to resuspend the precipitate.

Procedure

See appropriate references for specific procedures.

Expected Results

Refer to appropriate references and procedures for results.

References

- McClung and Toabe. 1947. J. Bacteriol. 53:139. Labbe. 2001. *In* Downes and Ito (ed.), Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.

U.S. Food and Drug Administration. 2001. Bacteriological analytical manual, online. AOAC International, Gaithersburg, Md.

Availability

Difco[™] McClung Toabe Agar Base

Cat. No. 294110 Dehydrated - 500 g

Difco[™] Egg Yolk Enrichment 50%

Cat. No.	233471	Tube – 12 \times 10 mL*
	233472	Bottle – 6 \times 100 mL*

*Store at 2-8°C.

