



PRODUCT SPECIFICATION SHEET

McClung Toabe Agar Base (DM163)

Intended Use

McClung Toabe Agar Base (DM163) is recommended for detection and isolation of *Clostridium perfringens* from food samples.

Product Summary and Explanation

McClung and Toabe formulated a medium for isolating and differentiating *Clostridium* species from food on the basis of their lecithinase and lipase activity.^(1, 2, 3) With the addition of 50% egg yolk emulsion, *C. perfringens* and a few other *Clostridium* species show the lecithinase reaction. Lecithinase enzyme lyses egg yolk lecithin, producing an opaque zone of precipitation surrounding the slightly raised colonies. *Clostridium perfringens* food poisoning is one of the most common types of human foodborne illness. *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. Sporulating cells produce a heat-labile enterotoxin which induces the major symptoms of diarrhea in perfringens poisoning. Although the enterotoxin is not preformed in the food, the foods in which conditions are favourable for sporulation may contain enterotoxin.⁽⁴⁾ Enumerating the microorganism in food samples plays a role in epidemiological investigation of outbreaks of food borne illness.⁽⁵⁾

Principles of the Procedure

Proteose peptone provides carbon and nitrogenous growth nutrients. Dextrose is the fermentable carbohydrate. Disodium hydrogen phosphate and Monosodium phosphate form a good buffering system. Sodium chloride provides essential ions. Magnesium sulphate provides divalent cations and sulphate. Addition of Egg Yolk Emulsion (MS038) provides lecithin for the lecithinase reaction.

Formula / Liter

Ingredients	Gms / Liter
Proteose peptone	40.00
Dextrose	2.00
Disodium hydrogen phosphate	5.00
Monopotassium phosphate	1.00
Sodium chloride	2.00
Magnesium sulphate	0.10
Agar	25.00
Final pH: 7.6 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 75.10 grams of the medium in 900 ml of distilled water.
2. Heat if necessary, to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Cool to 50°C and aseptically add 100 ml of sterile Egg Yolk Emulsion (MS038).
5. Mix well and pour into sterile petri plates.

Quality Control Specifications





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Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Basal medium : Amber coloured clear to slightly opalescent gel After addition of egg yolk emulsion : Yellow coloured opalescent gel forms in Petri plates
Reaction of 7.5% Solution	pH : 7.6 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 2.5% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours under anaerobic condition with added sterile Egg Yolk Emulsion (MS038).

Sr. No.	Organisms	Results to be achieved				
		Inoculum (CFU)	Growth	Recovery	Lecithinase	Lipase activity
1.	<i>Clostridium perfringens</i> ATCC 12919	50 -100	good-luxuriant	>=70 %	positive reaction, opaque zone around the colony	negative reaction, no iridescent sheen on the growth surface
2.	<i>Clostridium sporogenes</i> ATCC 11437	50 -100	good-luxuriant	>=70 %	negative reaction	positive reaction, iridescent sheen on the growth surface
3.	<i>Staphylococcus aureus</i> ATCC 25923	50-100	fair to good	>=70 %	positive reaction, opaque zone around the colony	positive reaction, iridescent sheen on the growth surface

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

1. Add 25 grams of food sample to be tested in two tubes containing 25 ml Fluid Thioglycollate Medium (DM263) with inverted Durhams tube.
2. Incubate at 46°C for 4-6 hours. Observe for growth and gas production.
3. Streak the presumptive *C. perfringens* on McClung Toabe Agar plates and incubate at 35-37°C for 18-24 hours.
4. Refer to appropriate references for specific procedures.

Results

1. Lecithinase-producing Clostridia, such as *C. Perfringens* contains Lecithinase enzyme that lyses egg yolk lecithin and produce opaque zones.
2. Lipase-producing organisms, show iridescent sheen on the growth surface.

Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.





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Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : McClung Toabe Agar Base.

Product Code : DM163

Available Pack sizes : 500gm

References

1. McClung L. S. and Toabe R., 1947, J. Bact., 53:139.
2. McClung L. S. and Toabe R., 1964, Public Health Service Publication No. 1142.
3. McClung L. S. and Toabe R., 1968, Laboratory Manual for Food Canners and Processors, Vol. 1, Pg. 25.
4. Downes F. P. and Ito K. (Eds.), 2001, Compendium of Methods For The Microbiological Examination of Foods, 4th ed., APHA, Washington, D.C.
5. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, DC.

Further Information

For further information please contact your local MICROMASTER Representative.



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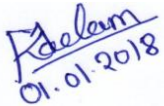
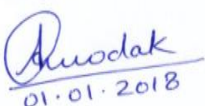

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