CTA Agar

Intended Use

CTA Agar is primarily used for carbohydrate fermentation tests with corynebacteria and especially for differentiation of C. *diphtheriae* from related species.

Summary and Explanation

CTA Medium[™], a semi-solid formulation, was developed by Vera and is widely used for fermentation and motility determinations by a wide variety of microorganisms.¹ CTA Agar is the solid form of CTA Medium and, when employed as a plated medium and used in conjunction with BBL[™] Taxo[™] carbohydrate discs, is useful in the speciation of Corynebacterium isolates of medical importance.² Supplemented with carbohydrates and prepared as slants, it is used for the differentiation of Neisseria species.³

Principles of the Procedure

CTA Agar utilizes peptone as a carbohydrate-free source of nutrients. Inorganic salts are included in order to supply essential ions. Phenol red is an indicator of pH changes in the medium surrounding the Taxo carbohydrates discs, which are applied to the surface of inoculated plates.

Formula

BBL[™] CTA Agar

Approximate Formula* Per Liter		
L-Cystine	0.5	g
Pancreatic Digest of Casein		g
Agar	14.0	g
Sodium Chloride	5.0	g
Sodium Sulfite	0.5	g
Phenol Red	17.0	mg
*Adjusted and/or supplemented as required to meet performance criteria.		0

Directions for Preparation from Dehydrated Product

- 1. Suspend 40 g of the powder in 1 L purified water. Mix thoroughly.
- 2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
- 3. Autoclave at 118°C for 15 minutes.
- 4. If desired, add 2 drops of sterile rabbit serum per tube prior to solidification in order to enhance the recovery of C. diphtheriae.
- 5. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Inoculate a pure culture of the organism onto the surface of the plated medium using a swab technique to inoculate the entire surface. Taxo carbohydrate discs are then applied to the agar surface using no more than four discs per plate.

User Quality Control

Identity Specifications BBL[™] CTA Agar

Dehydrated Appearance:	Fine, homogeneous, free of extraneous material.
Solution:	4.0% solution, soluble in purified water upon boil- ing. Solution is medium, orange-red to red-rose, clear to slightly hazy.
Prepared Appearance:	Orange-red to red-rose, slightly hazy.
Reaction of 4.0% Solution at 25°C:	рН 7.3 ± 0.2

Cultural Response BBL[™] CTA Agar

Prepare the medium per label directions. Inoculate with fresh cultures and incubate at $35 \pm 2^{\circ}$ C for 18-48 hours.

ORGANISM	ATCC™	RECOVERY
Corynebacterium diphtheriae	11913	Growth
Corynebacterium pseudodiphtheriticum	10700	Growth

Incubate plates for 18-48 hours at $35 \pm 2^{\circ}$ C in an aerobic atmosphere.

Expected Results

Typical diphtheria bacilli ferment dextrose and maltose, but not sucrose.

Typical carbohydrate reactions for selected corynebacteria on CTA Agar plates containing Taxo carbohydrate discs are as follows:

CORYNEBACTERIUM SPECIES	DEXTROSE	MALTOSE	SUCROSE
C. diphtheriae	+	+	-
C. pseudodiphtheriticum	-	-	-
C. xerosis	+	+	+
C. jeikeium	+	V	-
+ = acid (yellow zone reaction) - = no acid produced			

v = variable reaction

Current schemes recommended for the identification of medically significant corynebacteria include carbohydrate utilization as part of the testing regimen. Appropriate references should be consulted for a discussion of the other tests, which enable a definitive identification of the above-named organisms as well as other clinically important species of corynebacteria.^{4,5}

References

- Vera, 1948, J. Bacteriol, 55:531.
- 3.
- Alberti, Orrali and Turia. 1965. Ann. 1st. Superiore di Sanita. 1:349. Morello, Janda and Doern. 1991. In Balows, Hausler, Herrmann, Isenberg and Shadomy (ed.), Manual of clinical microbiology, 5th ed. American Society for Microbiology, Washington, D.C. 4.
- Murray, Baron, Jorgensen, Landry and Pfaller (ed.). 2007. Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C. Forbes, Sahm and Weissfeld. 2007. Bailey & Scott's diagnostic microbiology, 12th ed. Mosby, Inc., 5. St. Louis, Mo.

Availability

BBL[™] CTA Agar

Cat. No. 211094 Dehydrated – 500 g

