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	20.0	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.*

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 boiling. 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:	pH 7.3 ± 0.2

Cultural Response

BBL™ CTA Agar

Prepare the medium per label directions. Inoculate with fresh cultures and incubate at 35 ± 2°C for 18-48 hours.

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

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.

Incubate plates for 18-48 hours at 35 ± 2°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

1. Vera. 1948. J. Bacteriol. *55*:531.
2. Alberti, Ortali and Turia. 1965. Ann. 1st. Superiore di Sanita. *1*:349.
3. 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. Funke and Bernard. 1999. *In* Murray, Baron, Pfaller, Tenover and Yolken (ed.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.
5. Forbes, Sahm and Weissfeld. 1998. Bailey & Scott's diagnostic microbiology, 10th ed. Mosby, Inc., St. Louis, Mo.

Availability

BBL™ CTA Agar

Cat. No. 211094 Dehydrated – 500 g