BiGGY Agar

Intended Use

BiGGY (Bismuth Sulfite Glucose Glycine Yeast) is a selective and differential medium used in the detection, isolation and presumptive identification of *Candida* species.

Summary and Explanation

BiGGY Agar is based on the formulation of Nickerson.[1] Nickerson developed the medium in 1953 following a study of sulfite reduction by *Candida* species.

Differentiation of *Candida* is based on growth patterns and pigmentation of isolated colonies. The bismuth sulfite acts as an inhibitory agent to suppress bacterial growth, which enables the recovery of isolated colonies of *Candida*. *Candida* species reduce the bismuth sulfite, resulting in pigmentation of colonies and, with some species, pigmentation in the surrounding medium.

Principles of the Procedure

Candida species, through a process of substrate reduction, produce sulfide and bismuth which combine to produce brown to black pigmented colonies and zones of dark precipitate in the medium surrounding colonies of some species. Dextrose and yeast extract provide the nutrients in the formulation.

NOTE: A decrease in pH is normal and does not affect performance.

User Quality Control

Identity Specifications

BBL™ BiGGY Agar

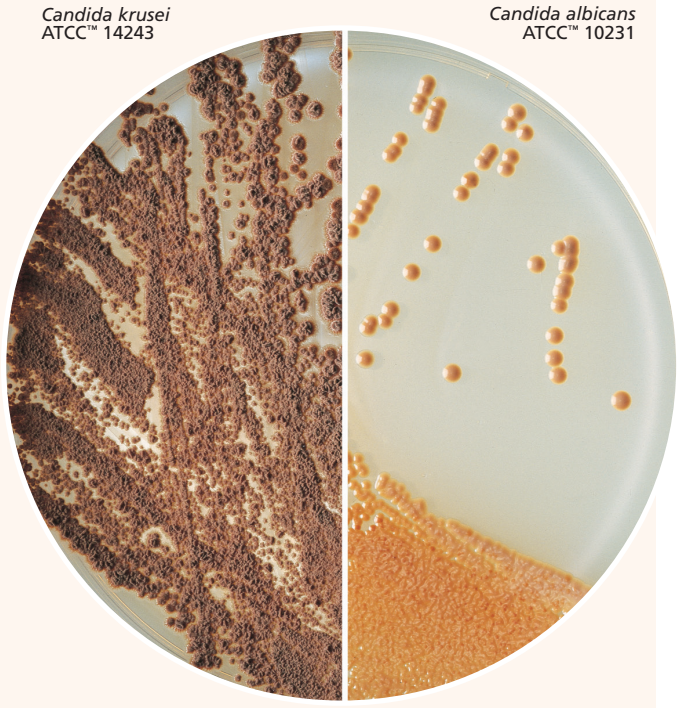
Dehydrated Appearance:	Medium fine, homogeneous, free of extraneous material.
Solution:	4.5% solution, soluble in purified water upon boiling. Solution is light to medium, cream yellow, hazy to cloudy.
Prepared Appearance:	Light to medium, cream yellow, hazy to cloudy.
Reaction of 4.5% Solution at 25°C:	pH 6.8 ± 0.2

Cultural Response

BBL™ BiGGY Agar

Prepare the medium per label directions. Inoculate with fresh cultures and incubate at 25 ± 2°C for 18-24 hours (3-5 days if necessary).

ORGANISM	ATCC™	RECOVERY	COLOR OF COLONIES/MEDIUM
Candida albicans	10231	Good	Brown to black/–
Candida kefyr	8553	Good	Reddish brown/–
Candida tropicalis	1369	Good	Brown to black, metallic sheen/Brown to black
Escherichia coli	25922	Partial to complete inhibition	–/–



Formula

BBL™ BiGGY Agar

Approximate Formula* Per Liter		
Bismuth Ammonium Citrate	5.0	g
Sodium Sulfite	3.0	g
Dextrose	10.0	g
Glycine	10.0	g
Yeast Extract	1.0	g
Agar	16.0	g

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

Directions for Preparation from Dehydrated Product

1. Suspend 45 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for not more than 1 minute to completely dissolve the powder. DO NOT AUTOCLAVE.
3. Cool to approximately 45-50°C. Swirl to disperse the insoluble material and pour into plates.
4. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Consult appropriate references for information about the processing and inoculation of specimens such as tissues, skin scrapings, hair, nail clippings, etc.[2-5] The streak plate technique is used primarily to obtain isolated colonies from specimens containing mixed flora. When using slants, streak the surface of the slant with a sterile inoculating loop needle using two to three isolated colonies.

Incubate plates in an inverted position (agar side up) for up to 5 days at 25 ± 2°C.

Expected Results

Within 5 days of incubation, the plates should show isolated colonies in streaked areas and confluent growth in areas of heavy inoculation. Slants should show evidence of growth.

Examine plates and slants for colonies showing characteristic growth patterns and morphology. The following table summarizes typical *Candida* colonial morphology.[6]

SPECIES OF CANDIDA	COLONIAL MORPHOLOGY
C. albicans	Smooth, circular or hemispherical brown-black colonies; may have slight mycelial fringe; no color diffusion into surrounding medium; no metallic sheen.
C. tropicalis	Smooth, discrete, dark brown to black colonies (may have black-colored centers); slight mycelial fringe; diffuse blackening of medium after 72 hours; metallic sheen.
C. krusei	Large, flat, wrinkled silvery brown-black colonies with brown peripheries; yellow to brown halo diffusion into medium; metallic sheen.
C. keyfr	Medium size, flat, dark reddish-brown glistening colonies; may have slight mycelial fringe; no diffusion.

References

1. Nickerson. 1953. J. Infect. Dis. 93:43.
2. Haley, Trandel and Coyle. 1980. Cumitech 11, Practical methods for culture and identification of fungi in the clinical mycology laboratory. Coord. ed., Sherris. American Society for Microbiology, Washington, D.C.
3. Isenberg and Garcia (ed.). 2004 (update, 2007). Clinical microbiology procedures handbook, 2nd ed. American Society for Microbiology, Washington, D.C.
4. Kwon-Chung and Bennett. 1992. Medical mycology. Lea & Febiger, Philadelphia, Pa.
5. Murray, Baron, Jorgensen, Landry and Pfaller (ed.). 2007. Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C.
6. MacFaddin. 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, Md.

Availability

BBL™ BiGGY Agar

Cat. No. 211027 Dehydrated – 500 g

United States and Canada

Cat. No. 297254 Prepared Plates – Pkg. of 20*
297255 Prepared Slants – Pkg. of 10*

Europe

Cat. No. 255002 Prepared Plates – Pkg. of 20*

Mexico

Cat. No. 252563 Prepared Plates – Pkg. of 10*

**Store at 2-8°C.*