

BIGGY AGAR (7191)

Intended Use

BIGGY Agar is used for the isolation and differentiation of *Candida* spp.

Product Summary and Explanation

BIGGY Agar is a modification of the formula described by Nickerson.^{1,2} BIGGY Agar, an abbreviation for Bismuth Glucose Glycine Yeast Agar, is also referred to as Nickerson Agar and Nickerson Candida Selective Agar. BIGGY Agar was developed while studying sulfite reduction by *Candida* spp. Nickerson found that *Candida albicans* can be differentiated from other *Candida* spp. on this medium based on colony morphology.

Candidiasis, the most frequently encountered opportunistic fungal infection is usually caused by *Candida albicans*.³ *Candida tropicalis* and *Candida (Torulopsis) glabrata* infections occur less frequently.³ *Candida* spp. are present in clinical specimens as a result of environmental contamination, colonization, or an actual disease process.⁴

Principles of the Procedure

The nitrogen, vitamin and carbon source is provided by Yeast Extract in BIGGY Agar. Glycine is used to stimulate growth. Dextrose is the carbohydrate source. *Candida* spp. reduce the Bismuth Ammonium Citrate, and colonies become brown to black in color. Bismuth Ammonium Citrate and Sodium Sulfite are selective agents against bacteria, often present as normal flora. Agar is the solidifying agent.

Formula / Liter

Yeast Extract	1 g
Glycine	10 g
Dextrose.....	10 g
Bismuth Ammonium Citrate	5 g
Sodium Sulfite.....	3 g
Agar	16 g

Final pH: 6.8 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precautions

1. For Laboratory Use.
2. HARMFUL. Harmful if swallowed, inhaled, or absorbed through the skin. May cause allergic reaction and breathing difficulties. May cause irritation to skin, eyes, and respiratory tract.

Directions

1. Suspend 45 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. DO NOT AUTOCLAVE.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing and beige.

Prepared Appearance: Prepared medium is trace to moderately hazy and grey-white in color.

Expected Cultural Response: Cultural response at 30 ± 2°C and examined for growth after 18 - 72 hours incubation.

Microorganism	Approx. Inoculum (CFU)	Expected Response	
		Growth	Reaction
<i>Candida albicans</i> ATCC® 10231	10 - 300	Fair to good	Brown to black colonies
<i>Candida tropicalis</i> ATCC® 750	10 - 300	Fair to good	Brown to black colonies
<i>Escherichia coli</i> ATCC® 25922	10 ³	Inhibited	--
<i>Staphylococcus aureus</i> ATCC® 25923	10 ³	Inhibited	--

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

Test Procedure

Refer to appropriate references for specific procedures on the isolation and identification of yeast spp.^{3,4}

Results

Colony morphology, according to Nickerson,² after 48 hours of incubation on BIGGY Agar:

<i>C. albicans</i>	Intensely brown-black colonies with slight mycelial fringe, medium sized, no diffusion.
<i>C. tropicalis</i>	Discrete dark brown colonies with black centers, and sheen, medium sized, diffuse blackening of the surrounding medium after 72 hours of incubation.
<i>C. pseudotropicalis</i>	Large, dark red-brown colonies, flat, with slight mycelial fringe.
<i>C. krusei</i>	Large, flat, wrinkled colonies with silver-black top, brown edge, and yellow halo.
<i>C. parakrusei</i>	Medium size, flat, wrinkled colonies with red-brown color, and yellow mycelial fringe.
<i>C. stellatoidea</i>	Medium size, flat, dark brown colonies, very light mycelial fringe.

Storage

Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration

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

Limitations of the Procedure

1. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. Pigmented bacterial and yeast-like fungi are usually inhibited on BIGGY Agar. They can be differentiated by microscopic examination. Dermatophytes and molds seldom appear, and are easily recognized by development of aerial mycelia.⁵
3. Further growth characteristic and biochemical tests are needed to differentiate yeasts, particularly identification of *Candida* spp.⁵
4. BIGGY Agar should be inoculated when the medium is freshly prepared.^{1,2}
5. Do not prepare slants of BIGGY Agar, the reactions are unsatisfactory.^{1,2}
6. A decrease in pH over the shelf life of the dehydrated product may occur. The decrease in pH is normal and does not affect the performance of the prepared culture medium.

Packaging

BIGGY Agar	Code No.	7191A	500 g
		7191B	2 kg
		7191C	10 kg

References

1. **Nickerson, W. J.** 1947. Biology of pathogenic fungi. The Chronica Botanica Co., Waltham, MA.
2. **Nickerson, W. J.** 1953. Reduction of inorganic substances by yeasts. I. Extracellular reduction of sulfite by species of *Candida*. J. Infect. Dis. **93**:43.
3. **Baron, E. J., L. R. Peterson, and S. M. Finegold.** 1994. Bailey & Scott's diagnostic microbiology, 9th ed. Mosby-Year Book, Inc., St. Louis, MO.
4. **Warren, N. G., and K. C. Hazen.** 1995. *Candida, Cryptococcus*, and other yeasts of medical importance, p. 723-737. In P. R. Murray, E. J. Baron, M. A. Pfaller, F. C. Tenover and R. H. Tenover (eds.). Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.
5. **MacFaddin, J. D.** 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1, p. 65-68. Williams & Wilkins, Baltimore, MD.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.