# Bi.G.G.Y. Agar (Nickerson Medium)

**M217**

## Intended Use:

Recommended for detection, selective isolation, differentiation and presumptive identification of *Candida albicans* and *Candida tropicalis.*

## Composition**

| Ingredients | g / L |
|---|---|
| Yeast extract | 1.000 |
| Glycine | 10.000 |
| Dextrose (Glucose) | 10.000 |
| Ammonium Bismuth Citrate | 5.000 |
| Sodium sulphite | 3.000 |
| Agar | 16.000 |
| Final pH ( at 25°C) | 6.8±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Directions

Suspend 45.0 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. **DO NOT AUTOCLAVE OR OVERHEAT.** Overheating will destroy the selective properties. Disperse the flocculant precipitate formed by swirling prior to dispensing into Petri plates.

## Principle And Interpretation

In a study of sulphite reduction by yeasts, the ability of many types of yeast to reduce bismuth sulphite was noted. Growth on an acidic or neutral medium containing bismuth sulphite produced black colonies because of the extra cellular reaction of the bismuth sulphite to bismuth sulphide.

Bi.G.G.Y. Agar (Nickerson Agar) was originally formulated by Nickerson (1,2) and further modified by Haley (3) following study of sulphite reduction. This medium is only a part of the identification process of organisms. Other tests may be required. Bismuth ammonium citrate and sodium sulphite together act as selective agents for *Candida* species suppressing bacterial growth, at the same time indicating substrate reduction to yield bismuth sulphite which helps to presumptively identify *Candida* species. Yeast extract, dextrose and glycine serve as nutrients.
Bi.G.G.Y. Agar can be directly inoculated with clinical specimens such as tissues, skin scrapings, hair, nail clipping etc. (4, 5). Do not use slants of medium. Precipitate present in molten medium should be uniformly suspended while plating the agar. This medium may be used for the isolation and presumptive identification of *C.albicans and C.tropicalis* from sputum (3) and vaginal smears (6).

## Type of specimen

Clinical samples - Sputum, vaginal specimen, tissues, skin scrapings, hair, nail clipping

## Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (6,7).
After use, contaminated materials must be sterilized by autoclaving before discarding.

## Warning and Precautions :

In Vitro diagnostic Use only. For professional use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

## Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Further biochemical and serological tests must be carried out for further identification.
3. DO NOT AUTOCLAVE OR OVERHEAT. Overheating will destroy the selective properties.

## Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

## Quality Control

**Appearance**

Cream to yellow homogeneous free flowing powder

**Gelling**

Firm, comparable with 1.6% Agar gel.

**Colour and Clarity of prepared medium**

Light amber coloured, opalescent gel (with a dispersible flocculant precipitate) forms in Petriplates

**Reaction**

Reaction of 4.5% w/v aqueous solution at 25°C. pH : 6.8±0.2

**pH**

6.60-7.00

**Cultural Response**

Cultural characteristics observed after an incubation at 25-30°C for 18-48 hours.

| Organism | Inoculum (CFU) | Growth | Recovery | Colony morphology |
|---|---|---|---|---|
| *Candida albicans* ATCC 10231 (00054*) | 50-100 | luxuriant | >=50% | smooth, circular intensly brown black, no colour diffusion and no sheen |
| *Candida kruisei* ATCC 24408 | 50-100 | luxuriant | >=50% | large flat, wrinkled silvery brown, black colonies with brown peripheries, yellow halo |
| *Candida tropicalis* ATCC 750 | 50-100 | luxuriant | >=50% | smooth discrete, dark brown with black centres, diffused blackening after 72 hours, sheen, slight mycelial fringe |
| *Escherichia coli* ATCC 25922 (00013*) | >=$10^4$ | inhibited | 0% | |
| *Staphylococcus aureus subsp. aureus* ATCC 25923 (00034*) | >=$10^4$ | inhibited | 0% | |
| *Candida pseudotropicalis* | 50-100 | Good | 40-50% | Dark reddish brown, glistening colony |

Key : *Corresponding WDCM numbers.

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use.

Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

## Reference

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3.Lennette, Balows, Hausler and Shadomy (Eds.), 1985, Manual of Clinical Microbiology, 4th ed., A.S.M. Washington, D.C.
4.MacFaddin J.F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore..
5.Mendel E.B., Naberman S. and Hall D. K., 1960, Obstel and Gynec.16, 180-184.
6.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
7.Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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IVD ***In vitro* diagnostic medical device**

**CE Marking**

10°C – 30°C **Storage temperature**

**Do not use if package is damaged**

Disclaimer :

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