# POTATO DEXTROSE AGAR

## INTENDED USE

Potato Dextrose Agar is used for the cultivation and enumeration of yeasts and molds.

Potato Dextrose Broth is used for cultivating yeasts and molds.

## SUMMARY AND EXPLANATION

Potato Dextrose Agar is a general purpose medium for yeasts and molds that can be supplemented with acid or antibiotics to inhibit bacterial growth. It is used in plate count methods when testing food,[1] dairy products[2] and cosmetics.[1] The USP lists Potato Dextrose Agar as one of the recommended media for use in the Microbial Enumeration Tests when testing nonsterile pharmaceutical products.[3]

Potato Dextrose Agar can be used to grow clinically significant yeasts and molds.[4] In addition, this medium is used to stimulate sporulation (slide preparations), maintain stock cultures of certain dermatophytes and differentiate atypical varieties of dermatophytes by pigment production.[5]

Potato Dextrose Broth is a general-purpose broth medium for yeasts and molds (Potato Dextrose Agar without the agar).

## PRINCIPLE

Potato starch, potato infusion and dextrose support luxuriant growth of fungi. Lowering the pH of the medium to approximately 3.5 with sterile tartaric acid achieves the inhibition of bacterial growth. It is important, however, to avoid heating the medium after it has been acidified because this action results in the hydrolysis of the agar and impairs its ability to solidify.

## REAGENTS (FORMULA)

| | | |
|---|---|---|
| Potato Starch ..... | 4.0 | g |
| Dextrose ..... | 20.0 | g |
| Agar ..... | 15.0 | g |
| Deionized Water ..... | 1000.0 | ml |

Broth consists of the same ingredients without the agar.

## PROCEDURE

For clinical specimens, refer to appropriate standard references for details on testing protocol to obtain isolated colonies from specimens using Potato Dextrose Agar.[4]

For food, dairy and cosmetic samples, refer to appropriate standard references for details on test methods using Potato Dextrose Agar.[1]

Streak the specimen onto prepared media with a sterile inoculating loop to obtain isolated colonies. When used for determining yeast and mold counts, the medium should be adjusted to a pH of approximately 3.5 with sterile tartaric acid and used in the standard pour plate technique. Incubate the plates at 25-30°C with increased humidity for up to 7 days.

For isolation of fungi from potentially contaminated specimens, a selective medium should be inoculated along with the nonselective medium. For isolation of fungi causing systemic mycoses, two sets of media should be inoculated, with one set incubated at 25-30°C and a duplicate set at 35 ± 2°C. All cultures should be examined at least weekly for fungal growth and should be held for 4-6 weeks before being reported as negative.

Inoculation of Potato Dextrose Broth with pure cultures of yeasts can assist in their identification.

## EXPECTED RESULTS

After sufficient incubation, the plates which were streak inoculated should show isolated colonies in streaked areas and confluent growth in areas of heavy inoculation. The colonies in pour plates should be counted and the results expressed as yeast and mold counts per gram or milliliter of material, taking into account the applicable dilution factor.

For broth, observe cultures for surface growth and pellicle formation.

## QUALITY CONTROL

All lot numbers have been tested and have been found to be acceptable. Customers can test products using the following quality control organisms. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

| Organisms | Incubation | Results |
|---|---|---|
| *Candida albicans* ATCC 10231 | 25-30°C for 18-48 hours | Growth |
| *Saccharomyces cerevisiae* ATCC 9763 | 25-30°C for 18-24 hours | Growth |

**BIBLIOGRAPHY**

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4. Murray, Baron, Jorgensen, Landry and Pfaller (ed.). 2007. Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C.

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