Potato Dextrose Agar (NCM0018)

Revision: 4 Effective Date: 6/23/2021

Intended Use
Potato Dextrose Agar is used for the preparation and maintenance of fungal test strains used in the growth promotion test, suitability of the counting methods and negative controls as described in the Harmonized USP/EP/JP. Potato Dextrose Agar is not intended for use in the diagnosis of disease or other conditions in humans.

Description
A medium recommended by the Harmonized USP/EP/JP for the cultivation of fungi and specifically for the preparation of the *Aspergillus brasiliensis* test strain. Conforms to USP/EP/JP performance specification. The medium is commonly abbreviated to PDA. The extract from potato and dextrose provide a nutritionally rich base that encourages mold sporulation and pigment production.

Typical Formulation
Potato Extract	4.0 g/L*
Dextrose	20.0 g/L
Agar	15.0 g/L

pH: 5.6 ± 0.2 at 25°C
*(equivalent to 200g of Infusion from potatoes)
Formula may be adjusted and/or supplemented as required to meet performance specifications

Supplement
NCM4011 Lactic Acid 10%

Precaution
Refer to SDS

Preparation
1. Suspend 39 grams of powder in 1 liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121˚C for 15 minutes.
4. Cool to 45-50°C.
5. If the addition of NCM4011 Lactic Acid 10% is required, this should be done after sterilization.
6. 10mL of NCM4011 will lower the pH of 1L of medium to 3.5.

Test Procedure

For USP/EP/JP Harmonized Pharmacopeia microbial enumeration tests
Surface inoculate with *Aspergillus brasiliensis* ATCC 16404 and incubate at 20-25° for 5-7 days to prepare inoculum for growth promotion and enumeration tests.

For the examination of food samples
Surface, or pour plate inoculation depending on the specific requirement of the test method employed; for example, FDA BAM recommends using Potato Dextrose Agar for the isolation of individual colonies from the primary selective plates if further analysis and species identification is necessary.

Or for pour plate use:
1. Add 1 mL of test sample to a sterile petri dish.
2. Add the specified amount (10 or 20 mL) of sterile, molten agar (cooled to 45 - 50°C) and swirl gently to mix well. Allow to solidify.
3. Incubate at 22 - 25°C or 30 - 32°C (depending on the method being followed) for 2 - 7 days or longer.

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In certain applications it may be desirable to lower the pH of the medium to 3.5 -4.0 in order to suppress bacterial growth. This can be achieved by adding 10 ml of a 10% solution of sterile NCM4011 lactic acid to one liter of the medium after sterilization and tempering to pouring temperature. This addition must be made after autoclaving and tempering and once the pH has been lowered the medium must not be heated again as this will result in a loss of gel strength due to agar hydrolysis.

Quality Control Specifications

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

Prepared Appearance: Prepared medium is clear to slightly hazy, and colorless to pale yellow

Expected Cultural Response: Cultural response is specific to the test micro-organism, refer to specific guidelines as defined in the USP/EP/JP Harmonized Pharmacopeia.

MICROORGANISM	ATCC	APPROX. INOCULUM (CFU)	EXPECTED RESULTS
Aspergillus brasiliensis	16404	10-100	70-200%
Candida albicans	10231	10-100	70-200%
Saccharomyces cerevisiae	9763	10-100	70-200%
Penicillium roquefortii	10110	Point inoculation	Growth
Trichophyton mentagrophytes	9533	Point inoculation	Growth

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

Results

Yeasts will grow as creamy to white colonies. Molds will grow as filamentous colonies of various colors. Count the number of colonies and consider the dilution factor (if the test sample was diluted) in determining the yeast and/or mold counts per gram or milliliter of material.

Expiration

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

Limitations of the Procedures

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow in this medium.

Storage

Store dehydrated culture media at 2-30°C away from direct sunlight. 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.

References

1. European Pharmacopoeia 10th Edition (2020)
2. United States Pharmacopeia National Formulary 2018: USP 41 NF 36
3. Japanese Pharmacopeia 17th Edition (2017)
4. FDA Bacteriological Analytical Manual (BAM) - www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm2006949.htm

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