

Sabouraud Dextrose Agar EP/USP/ISO

Cat. 1024

For the cultivation of yeasts and molds.

Practical information

Applications	Categories
Non selective enumeration	Yeasts and molds

Industry: Pharmaceutical/Veterinary / Clinical / Food / General cultivation / Antimicrobial susceptibility testing / Final product Quality Control

Regulations: USP / ISO 11133 / ISO 16212 / European Pharmacopoeia



Principles and uses

Sabouraud Dextrose Agar can be used for cultivating yeasts, molds (as cultivating pathogenic fungi, particularly those associated with skin infections) and aciduric microorganisms. This medium is also used for determining the microbial and fungal content of cosmetics and for the mycological evaluation of food.

The formula is based on the European Pharmacopoeia. Dextrose is the fermentable carbohydrate providing carbon and energy. Peptone mixture provides nitrogen, vitamins, minerals and amino acids essential for growth. Bacteriological agar is the solidifying agent. The high dextrose concentration and acidic pH make this medium selective for fungi.

Georg et al. demonstrated that the basic agar fortified by three antibiotics considerably improves the isolation of pathogenic fungi from heavily contaminated sources. To prepare a selective culture medium aseptically add the following for every liter of the medium before use: 0,4 g Cycloheximide; 20 units Penicillin; 40 mg Streptomycin.

One can obtain a very rich Sabouraud medium by dissolving the medium in one liter of Heart Infusion (Cat. 1714).

The European Pharmacopoeia recommends this medium in the paragraph 2.6.12: "Microbiological examination of non – sterile products: Microbial enumeration test" for the examination of TYMC in products. In the paragraph 2.6.13: "Microbiological examination of non-sterile products: Test for specified microorganisms" for the test of *Candida albicans* in products.

Formula in g/L

Dextrose	40	Bacteriological agar	15
Mixture of peptic digest of animal tissue and pancreatic digest of casein (1:1)	10		

Preparation

Suspend 65 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Distribute in proper containers and sterilize in autoclave at 118-121 °C for 15 minutes. AVOID OVERHEATING as it facilitates the hydrolysis of the components and the medium remains soft.

Instructions for use

» For clinical diagnosis, the type of samples are all kind of samples (hair, skin,nails, etc). If the samples are formed by scrapes of skin, hair or nails, place the material in the center of the surface of the medium.

- Spread a plate with loop or swab
- Incubate in aerobic conditions at 30±2 °C for 18-48 hours and until 7 days if necessary.

- Reading and interpretation of results.

» For other uses not covered by the CE marking:

According to European Pharmacopoeia for the examination of TYMC in products:

Membrane filtration:

- Prepare the sample.
- Transfer the appropriate amount of the sample to a membrane filter.
- Place the membrane to the surface of Sabouraud Dextrose Agar.
- Incubate the plate of Sabouraud Dextrose Agar at 20-25 °C for 5-7 days.

Plate-count methods:

- Prepare the sample.
- Inoculate the plates of Sabouraud Dextrose Agar conforming to the pour-plate method or the surface-spread method.
- Incubate the plates of Sabouraud Dextrose Agar at 20-25 °C for 5-7 days.
- Select the plates corresponding to a given dilution and showing the highest number of colonies less than 50.

According to European Pharmacopoeia for the test of *Candida albicans* in products:

- Prepare the product to be examined and use 10 mL or the quantity corresponding to not less than 1 g or 1 mL to inoculate 100 mL of Sabouraud Dextrose Broth.
- Incubate at 30-35 °C for 3-5 days.
- Subculture on a plate of Sabouraud Dextrose Agar.
- Incubate at 30-35 °C for 24-48 hours.
- Growth of white colonies may indicate the presence of *C. albicans*. Confirm by identification tests.
- The product complies with the test if such colonies are not present or if the confirmatory tests are negative.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Beige	Amber slightly opalescent	5,6 ± 0,2

Microbiological test

According to European Pharmacopoeia; *Aspergillus brasiliensis* and *Candida albicans*:

Incubation conditions: (20-25 °C / ≤5 days).

Inoculation conditions: (≤100 CFU).

Rest of strains:

Incubation conditions: (30 °C / 3-7 days).

Microorganisms	Specification	Characteristic reaction
<i>Candida albicans</i> ATCC 10231	Good growth	White colonies
<i>Aspergillus brasiliensis</i> ATCC 16404	Good growth	White mycelium, black spores
<i>Escherichia coli</i> ATCC 25922	Moderate-good growth	
<i>Escherichia coli</i> ATCC 8739	Moderate-good growth	
<i>Lactobacillus rhamnosus</i> ATCC 9595	Good growth	
<i>Saccharomyces cerevisiae</i> ATCC 9763	Good growth	Cream domed colonies

Storage

Temp. Min.: 2 °C

Temp. Max.: 25 °C

Bibliography

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Beuchat, L.R., J.E Corry, A.D King, Jr. and J.I Pitt (ed) 1986 Methods for the mycological examination of food. Plenum Pres, New York.

European Pharmacopoeia. 9.3

ISO 16212: 2017 Cosmetics. Microbiology. Enumeration of yeast and molds.