Sabouraud Agar, Modified • Sabouraud Dextrose Agar, Emmons • Sabouraud Dextrose Agar, Emmons, with Antimicrobics

Intended Use

Sabouraud Agar, Modified (Emmons) and Sabouraud Dextrose Agar, Emmons are used in qualitative procedures for cultivation of dermatophytes and other pathogenic and nonpathogenic fungi from clinical and nonclinical specimens.

Sabouraud Dextrose Agar, Emmons is rendered selective by the addition of antimicrobial agents.

Summary and Explanation

Sabouraud Dextrose Agar was devised by Sabouraud for the cultivation of dermatophytes.[1] The low pH of approximately 5.6 is favorable for the growth of fungi, especially dermatophytes, and inhibitory to contaminating bacteria in clinical specimens.[2] The acidic pH, however, also may inhibit some fungal species.[2-4] Emmons modified the original formulation by adjusting the pH close to neutral to increase the recovery of fungi and by reducing the dextrose content from 40 to 20 g/L.[4] The two base formulations offered differ in peptone content and amount of agar. The addition of antimicrobics further increases the selectivity of the medium.[3,4]

User Quality Control

Identity Specifications

Difco™ Sabouraud Agar, Modified

Dehydrated Appearance:	Light beige, free-flowing, homogeneous.
Solution:	5.0% solution, soluble in purified water upon boiling. Solution is light to medium amber, slightly opalescent.
Prepared Appearance:	Light to medium amber, slightly opalescent.
Reaction of 5.0% Solution at 25°C:	pH 7.0 ± 0.2

Cultural Response

Difco™ Sabouraud Agar, Modified

Prepare the medium per label directions. Inoculate and incubate at 30 ± 2°C for 18-48 hours, or up to 7 days if necessary.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
Aspergillus brasiliensis (niger)	16404	Undiluted	Good
Candida albicans	10231	30-300	Good
Lactobacillus rhamnosus	9595	30-300	Good
Saccharomyces cerevisiae	9763	30-300	Good
Trichophyton mentagrophytes	9533	Undiluted	Good

Principles of the Procedure

Peptones are sources of nitrogenous growth factors. Dextrose provides an energy source for the growth of microorganisms. Gentamicin is an aminoglycoside antibiotic that inhibits the growth of gram-negative bacteria. Chloramphenicol is inhibitory to a wide range of gram-negative and gram-positive bacteria, and cycloheximide is an antifungal agent that is primarily active against saprophytic fungi and does not inhibit yeasts or dermatophytes.[5]

Formula

Difco™ Sabouraud Agar, Modified

Approximate Formula* Per Liter		
Enzymatic Digest of Casein	10.0	g
Dextrose	20.0	g
Agar	20.0	g

**Adjusted and/or supplemented as required to meet performance criteria.*

Directions for Preparation from Dehydrated Product

1. Suspend 50 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Consult appropriate references for information about the processing and inoculation of specimens.[2,3]

Prepared tubed slants primarily are intended for use with pure cultures for maintenance or other purposes.

For isolating fungi from potentially contaminated specimens, a selective medium should be inoculated along with the nonselective medium. Incubate the plates at 25-30°C in an inverted position (agar side up) with increased humidity. 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.

Expected Results

After sufficient incubation, the plates or tubes should show growth with or without isolated colonies. Transfer of growth from tubes to plated media may be required in order to obtain pure cultures of fungi.

Examine plates or tubes for fungal colonies exhibiting typical color and morphology.[6] Biochemical tests and serological procedures should be performed to confirm findings.

Limitation of the Procedure

Antimicrobial agents incorporated into a medium to inhibit bacteria may also inhibit certain pathogenic fungi.

References

1. Sabouraud. 1892. Ann. Dermatol. Syphil. *3*:1061.
2. Ajello, Georg, Kaplan and Kaufman. 1963. CDC laboratory manual for medical mycology. PHS Publication No. 994, U.S. Government Printing Office, Washington, D.C.
3. LaRocco. 2007. *In* Murray, Baron, Jorgensen, Landry and Pfaller (ed.), Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C.
4. Kwon-Chung and Bennett. 1992. Medical mycology. Lea & Febiger, Philadelphia, Pa.
5. Lorian (ed.). 1996. Antibiotics in laboratory medicine, 4th ed. Williams & Wilkins, Baltimore, Md.
6. Larone. 1995. Medically important fungi: a guide to identification, 3rd ed. American Society for Microbiology, Washington, D.C.

Availability

Difco™ Sabouraud Agar, Modified

SMWW

Cat. No.	274720	Dehydrated – 500 g
	274710	Dehydrated – 2 kg

BBL™ Sabouraud Dextrose Agar, Emmons

CMPH2 MCM9 SMWW

Cat. No.	221849	Prepared Plates (Deep Fill) – Pkg. of 20*
	221867	Prepared Plates (Deep Fill) – Ctn. of 100*
	221826	Prepared Slants (C Tubes) – Pkg. of 10
	221827	Prepared Slants (C Tubes) – Ctn. of 100
	296308	**Mycoflask™** Bottles – Pkg. of 10

BBL™ Sabouraud Dextrose Agar, Emmons with Chloramphenicol

MCM9

Cat. No.	297931	Prepared Plates (Deep Fill) – Pkg. of 10*
	297474	Prepared Plates (Deep Fill) – Ctn. of 100*

BBL™ Sabouraud Dextrose Agar, Emmons with Chloramphenicol and Cycloheximide

Cat. No.	297932	Prepared Plates (Deep Fill) – Pkg. of 10*

BBL™ Sabouraud Dextrose Agar, Emmons with Gentamicin

Cat. No.	296348	Prepared Plates (Deep Fill) – Pkg. of 20*

**Store at 2-8°C.*