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TECHNICAL PRODUCT INFORMATION

Catalog No: P1270 CORN MEAL AGAR

INTENDED USE:

Corn Meal Agars are recommended for the cultivation of pathogenic fungi, production of chlamydo spores by *Candida albicans*, and chromogenesis of dermatophytes.

HISTORY/SUMMARY:

In 1955, Hazen and Reed¹ utilized infused Corn Meal Agar in culturing pathogenic fungi.

Pollack and Benham³ reported the efficacy of Corn Meal Agar in developing the differential mycelial characteristics of *Candida* species which are useful in identification. Kelly and Funigiello⁴ studies demonstrated the addition of 1% Tween 80 in Corn Meal Agar enhanced chlamydo spore production of *Candida albicans*.

Walker and Huppert⁵ evaluated Corn Meal-polysorbate medium for the identification of *Candida albicans* and other *Candida* species isolated from clinical materials. They concluded that additional polysorbate 80 did not affect the ability of Corn Meal Agar to induce the formation of specific mycelial characteristics which are useful in identification. Their results also revealed that since *Candida albicans*, *Candida stellatoidea* and *Candida tropicalis* were capable of forming chlamydo spores in Corn Meal with polysorbate 80; this medium should not be used alone for identification of *Candida albicans*.

Conant et al.⁶ utilized Corn Meal with added 1% dextrose to demonstrate chromogenesis by some species of *Trichophyton*.

PRINCIPLE:

The corn meal infusion provides nutrients to support growth of fungal species. Polysorbate 80 is a mixture of oleic esters which, when added to the corn meal infusion stimulate production of chlamydo spores. Dextrose provides an energy source to enhance fungal growth and chromogenesis.

FORMULA:

CORN MEAL AGAR

Component (per liter of purified water)	Amount
Corn Meal, Infusion from (Solids)	50.0 g
Polysorbate 80	10.0 g
Agar	15.0 g

Final pH: 6.0 ± 0.2 at 25°C

CORN MEAL w/DEXTROSE

Component (per liter of purified water)	Amount
Corn Meal, Infusion from (Solids)	50.0 g
Polysorbate 80	10.0 g
Agar	15.0 g
1% Dextrose	10.0 g

Final pH: 6.0 ± 0.2 at 25°

PRECAUTIONS:

Since living organisms used with this material can be infectious to the user, proper handling and disposal methods should be established by the laboratory director. This product is for In Vitro Diagnostic Use.

STORAGE:

This media should be stored at 2-8°C. Adequate storage prolongs the life and quality of the product; do not use the media beyond its expiration date.

PROCEDURE:

Yeasts are first isolated on a variety of other culture media before being tested on Corn Meal Agar.

1. Pick up a small amount of the unknown yeast colony on the tip of a sterile inoculating needle.
2. Make three consecutive parallel scratches into the surface of the Corn Meal Agar plate through to the bottom of the plate. The slightly reduced oxygen tension provided by this technique induces chlamyospore formation.
3. Using an inoculating loop, streak across the three scratches.
4. Flame a coverslip and place it over the center of the inoculation scratches.
5. Always include a positive control with a known chlamyospore producing isolate of *Candida albicans*. (Some strains may lose their ability to form chlamyospores after repeated transfer.)
6. Incubate the plates at 25°C.
7. Plates should be examined at 24, 48, and 72 hours for production of chlamyospores.
8. Under the low power objective, examine the streaks on the bottom of the plate or the cover glass on the agar surface for branching mycelia with clusters of blastospores and thick-walled, round chlamyospores at the terminal end of the hyphae. The chlamyospores are generally 8-12 micron in diameter.

Corn Meal Agar with Dextrose may be used as a primary medium for isolation and cultivation of fungi.

1. Clinical specimens should be implanted by gently pressing the samples into the agar surface.
2. Incubation at room temperature of 20-32°C is satisfactory for growth of most dermatophytes.
3. Incubate cultures for 3-4 weeks before discarding as negative.
4. Examine regularly for growth.

Parallel inoculation onto a selective medium such as Sabouraud Agar with penicillin-streptomycin or chloramphenicol is recommended if the specimen is likely to be mixed with bacterial flora.

A common use for Corn Meal Agar w/1% Dextrose is for differentiation of some Trichophyton species. Certain strains of dermatophytic *T. mentagrophytes* and *T. rubrum* produce a deep red pigment on reverse when grown on conventional media.

Inoculate a small portion of the test fungus to Corn Meal Agar w/1% Dextrose. Incubate at least 3 weeks at room temperature examining regularly for pigment production.

LIMITATIONS:

Since it is reported that other species (*C. stellatoidea* and *C. tropicalis*) produce chlamyospores as well as *C. albicans*, caution must be exercised in making a definitive identification without corroborating results. Confirmation of species identity can be made by noting characteristics of mycelial growth on Levine's Eosin Methylene Blue medium and by performing sugar fermentation reactions.

Corn Meal Agar with 1% Dextrose is not recommended for detecting production of chlamyospores by *Candida* species.

TEST CHARACTERISTICS:**Corn Meal Agar w/Tween 80**

ORGANISMS	RESULTS
<i>Candida albicans</i>	Growth with chlamyospores
<i>Candida stellatoidea</i>	Growth of chlamyospores
<i>Candida tropicalis</i>	Growth with chlamyospores
<i>Candia krusei</i>	Growth with no chlamyospores
Uninoculated Control	No Growth

Corn Meal Agar w/1% Dextrose

ORGANISMS	RESULTS
Trichophyton rubrum	Growth- red color

QUALITY CONTROL:

ATCC#	ORGANISM	GROWTH AT 20-25°C
ATCC# 16404	<i>Aspergillus brasiliensis</i>	Growth in 2-7 days
ATCC# 9533	<i>Trichophyton mentagrophytes</i>	Growth in 2-7 days
ATCC# 10231	<i>Candida albicans</i>	Growth in 36-48 hours
ATCC# 25922	<i>Escherichia coli</i>	Growth in 18-24 hours

REFERENCES:

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