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For Veterinary Use Only

Fungal Culture Systems:

Duo-Derm™ Culture System, DTM / ESA, #20165
Dermatophyte Test Medium / Enhanced Sporulation Agar, Bi-Plate
Duo-Sab™ Culture System, DTM / SDA, #20170
Dermatophyte Test Medium / Modified Sabouraud Dextrose Agar, Bi-Plate

Introduction
These fungal culture systems are designed to provide a simple and comprehensive analysis of the pathogenic fungus that cause most fungal infections seen in the clinical practice of veterinary medicine.

History / Summary
Dermatophyte test Medium (DTM) is a preferred medium for isolation and early detection of members of Microsporum, Trichophyton, and Epidermophyton genera by means of the distinct color change. Rapid growing species may effect a complete medium color change in as few as three days. The slower growing species will change the indicator in proportionately longer time periods. Other organisms may grow on DTM but can be recognized as non-dermatophytes by the absence of color change. A few organisms, including saprophytes and yeasts are capable of changing the medium form orange to red, but they are easily recognized by their distinctive colonial morphology.

Enhanced Sporulation Agar (ESA) is quite similar to DTM in several ways. It contains a color indicator which changes from yellow to blue-green. ESA also contains supplements to inhibit bacteria and saprophytic fungi. Therefore this medium acts as a selective medium for the isolation of dermatophytes. What makes ESA unique is that it enhances both pigmentation and spore formation of dermatophytes, thus allowing for proper identification of the fungal isolates.

Modified Sabouraud Dextrose Agar (SDA) is a medium designed for identification of fungi based on their cultural characteristics. Selective agents are incorporated into the medium to inhibit bacterial growth. Identification of fungi on this medium is made by noting various aspects of the gross morphology such as the rate of growth, topography, texture, and pigmentation, along with the characteristic microscopic structures observed in direct and slide culture preparations.

Specimen Collection
Sample collection (critical to successful culturing of dermatophytes): Samples can be collected from any animal species with a suspected dermatophyte infection. the site should be cleaned if grossly contaminated. Soap and water may be used gently to avoid mechanical removal of infected material. A gauze sponge soaked in 70% alcohol may be laid over the sample site for 30 seconds or wiped gently over the site. Let the site dry before collecting sample. Clean forceps and/or scalpel may be used to obtain infected hairs, skin scales and crusts. The periphery of active lesions is the best area to obtain the samples. Fluorescing hairs and skin fragments observed under a Wood's lamp are excellent specimens.

Procedure
Allow plate to warm to room temperature before inoculation. As soon as possible after receipt, the specimen should be inoculated onto the Mycological agars. Transfer specimen to agar surface and gently implant specimen in the surface of the agar. Specimens may contain fragments of skin, nails, hair, pus, etc. Replace lid on plate and incubate lid side down at room temperature in the dark, (25-30ºC) for 14 days maximum.

Interpretation
Examine plate after 2-3 days and every day there after for characteristic color change on DTM and colony appearance. The orange to red color change on the DTM must occur simultaneous with a white fluffy or white granular growth to interpret as a positive test. Most pathogenic dermatophytes will produce full color change from yellow orange to red in 3-6 days on the DTM medium while most saprohytic fungi and bacteria are inhibited. Certain strains of yeast (Candida albicans) are capable of converting the indicator to red, but the yeasts can be identified by their white bacteria like colonial appearance on both the DTM, SDA and ESA. The color change of ESA is usually not as intense as that of the DTM. Most dermatophytes will change the ESA medium to a bluish-green color in 3-7 days while most saprophytic fungi and bacteria are inhibited. SDA is a less inhibitory agar than both DTM and ESA. More contaminants and even some bacteria may grow on SDA. SDA does not exhibit any color change other than the normal pigmentation of the fungus.

Common Dermatophytes
Please Note: Undersurface is view of growth from bottom of dish, through medium.

Microsporum canis
DTM Red color change in media
ESA Blue-Green color change in media. White fluffy middle area, golden yellow border, yellowundersurface view
SDA White fluffy middle area, golden yellow border Yellow undersurface view

Microsporum gypeseum
DTM Red color change in media
ESA Blue-Green color change in media. Light brown border- white rapidly spreading mycelium, cream to tan undersurface view
SDA Light brown border- white rapidly spreading mycelium, cream to tan undersurface view

Trichophyton mentagrophytes
DTM Red color change in media
ESA Blue-Green color change in media. Granular white, sugar like appearance, variable under surface color
SDA Granular white, sugar like appearance, variable under surface color

Trichophyton tonsures
DTM Red color change in media
ESA Blue-Green color change in media. Velvety texture with rugose folds. Reddish-brown undersurface
SDA Velvety texture with rugose folds. Reddish-brown undersurface

Trichophyton rubrum
DTM Red color change in media
ESA Blue-Green color change in media. White-fluffy downy appearance with dark red under surface
SDA White-fluffy downy appearance with dark red under surface

Epidermophyton floccosum
DTM Red color change in media
ESA Blue-Green color change in media. Restricted growth, olive green to pale yellow growth with brownish undersurface
SDA Restricted growth, olive green to pale yellow growth with brownish undersurface

Trichophyton terrestre
DTM Red color change in media
ESA Blue-Green color change in media. Buff yellow, powdery, may look like T. mentagrophytes, pale to light tan undersurface
SDA Buff yellow, powdery, may look like T. mentagrophytes, pale to light tan undersurface

Storage
Store plates as they are shipped in an inverted position, lid side down, at 2-8°C. Plates in sealed bags are stable at room temperature for up to 90 days. DO NOT ALLOW PLATES TO FREEZE. If plates freeze they cannot be used.

Limitations
The complete classification of dermatophytes depends upon microscopic observations of direct and slide culture preparations along with physiological and serological tests.

Warnings and Precautions
Observe aseptic techniques and established precautions against microbiological hazards throughout all procedures. After use, plates, specimen containers and other contaminated materials must be properly disposed.

Agar Formulations
On file at Shelby Scientific, Inc.

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