DermatoPlate®-Duo and DermatoPlate® S-Duo™ Culture System
Product Information and Instructions

Intended Use: DermatoPlate®-Duo and DermatoPlate® S-Duo with Saboaroud's are specialized culture plates containing selective media used for the isolation of certain fungi known to cause disease in animals. All DermatoPlate® products are intended for veterinary diagnostic use only.

Summary and Background: Dermatomycoses are common clinical infections of dogs, cats, horses, and other animals as well as humans. The dermatophytes are mycelial fungi which possess keratolytic properties that allow them to invade skin, nails, and hair. Dermatophyte Test Medium (DTM) incorporates antibiotics that suppress the growth of saprophytic fungi and contaminating bacteria while allowing the growth of dermatophytic fungi. Dermatophytes are presumptively identified by gross colonial morphology and the production of alkaline metabolites which cause a color change in the medium from yellow to red.

Rapidly growing species may produce a complete medium color change in as few as 2-3 days. The slower growing species will change the indicator in proportionately longer time periods. Other organisms may grow on DTM, but they will be recognized as non-dermatophytes by the absence of color change. A few organisms including saprophytes, yeasts, and some bacteria are capable of changing the medium from yellow to red; however, these contaminants can generally be recognized by their distinctive colonial morphology and microscopic features.

Enhanced Sporulation Agar (ESA) is similar to traditional DTM. Like DTM, ESA contains supplements to inhibit the growth of bacteria and saprophytic fungi. ESA also produces a color change in the presence of pathogenic organisms; however the color change seen with ESA is blue-green. In addition, ESA promotes a more luxuriant growth of macroconedia allowing for easier and often earlier confirmation of infection.

Modified Sabaroud Dextrose agar (SDA) is a medium designed for identification of fungi based on their cultural characteristics. These characteristics include rate of growth, topography, texture, and pigmentation along with the characteristic microscopic structures observed in stained direct slide preparations.

Product Features: DermatoPlate®-Duo and S-Duo consist of individually wrapped rectangular culture plates with removable lids that allow for easier inoculation and collection of specimens for identification. DermatoPlate®-Duo is a two chambered plate containing traditional DTM which is deep yellow to orange and Enhanced Sporulation Medium (ESA) which is pale yellow. DermatoPlate® S-Duo is a two chambered plate containing DTM plus Modified Sabaroud Dextrose Medium which is light amber colored. Clear Individual packaging of the plates extends shelf life.

Specimen Collection: Proper specimen collection is critical to successful culturing of dermatophytes. Prior to collection, the suspected skin lesion should be gently cleaned if grossly contaminated. Soap and water or a gauze sponge soaked in 70% alcohol may be used. Allow the site to dry before collecting the sample. (Note: The question of whether to preclean the site remains controversial and the reported negative effects of cleaning may be related to slight differences in the formulation of culture medium. We suggest you consult an experienced veterinary dermatologist for specific recommendations.) Specimens for collection should be taken from the periphery of the lesion where active growth is most likely occurring. Fluorescing hairs observed under a Wood's (UV) lamp make optimal specimens as do broken hair shafts. Collect hair, scale, and crust using clean forceps tugging gently in the direction of hair growth in order to capture the root bulb.

Whole body or large lesion samples: This can be performed using a sterile toothbrush (MacKenzie technique) to "comb" the animal's entire body. Individual suspect lesions should be sampled last to avoid spread of active organisms into non-infected areas. Detailed instructions for whole body sampling can be found in most dermatology texts and various articles appearing on the internet. This technique is especially useful for detecting asymptomatic carriers.

Procedure: Plates should be inoculated as soon as possible after specimen collection. Gently press the specimen onto the surface of the media and push a second small portion of the specimen down into the agar. When using a toothbrush, inoculate the medium by gently stabbing with the bristles of the toothbrush. Replace the lid and incubate at room temperature (25-30º C). Most organisms will appear in 7-10 days however plates should be kept for 21 days, especially when no growth is seen initially. While plates may be incubated in full light, some authors suggest placing them in a dark area to prevent UV light inhibition of growth. In very dry climates, it is suggested that plates be placed in plastic bags or containers to prevent dehydration of the media which can inhibit growth of organisms. After 48-72 hours, begin examining the plates daily for characteristic color changes and growth. For highly suspect cases, if no growth is seen within 7 days open the plate and redistribute the specimen.

Precautions: This product is for IN VITRO diagnostic use only. Culture specimens may contain microorganisms which can be potentially infectious to personnel. Strict adherence to aseptic techniques and established precautions against microbiological hazards should be followed throughout the procedure. Carefully dispose of all items which contact patient specimens or isolated bacteria.

Interpretation: Most pathogenic dermatophytes will produce a full color change from yellow to red in 3-6 days on 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 these organisms can be identified by their white bacterial colony-like appearance on the medium. The color change seen with ESA is generally not as intense as that of the DTM. Most dermatophytes will change the ESA medium to a bluish-green color in 3-7 days. Sabaroud Dextrose Agar contains no color indicator.

Microscopic Identification: Because contaminating organisms can sometimes cause a color change in the medium, microscopic confirmation of infection is essential. Examination of a simple "wet" preparation is usually conclusive. To perform the microscopic examination, place one drop of DermatoPlate® fungal stain in the center of a clean microscope slide. Using clear (not frosted) cellophane tape or Fungitape® and clean forceps, gently touch the sticky surface of the tape to the flocculent growth on the plate. Transfer to the slide and press the tape down into the drop of stain while smoothing flat. Add a coverglass and examine the slide under 4X and 10X power for characteristic macroconedia. (See chart enclosed.)

Expected Results for Common Dermatophytes
Please Note: Undersurface is view of growth from bottom of plate, through medium.

Microsporum canis
DTM Red color change in media.
ESA Blue-Green color change.
SDA No color change
White fluffy, middle area; golden yellow border, yellow undersurface.

Microsporum gypseum
DTM Red color change in media.
ESA Blue-Green color change.
SDA No color change
Light brown border, white rapidly spreading mycelium, cream to tan undersurface.

Trichophyton mentagrophytes
DTM Red color change in media
ESA Blue-Green color change.
SDA No color change
Granular, white, sugar-like appearance, variable undersurface color.

Trichophyton tonsures
DTM Red color change in media.
ESA Blue-Green color change.
SDA No color change
Velvety texture with rugose folds. Reddish-brown undersurface.

Trichophyton rubrum
DTM Red color change in media.
ESA Blue-Green color change.
SDA No color change
White, fluffy downy appearance with dark red undersurface.

Epidermophyton floccosum
DTM Red color change in media
ESA Blue-Green color change.
SDA No color change
Restricted growth, olive green to pale yellow growth with brownish undersurface.

Trichophyton terrestra
DTM Red color change in media
ESA Blue-Green color change
SDA No color change
Buff yellow, powdery, may look like T. mentagrophytes, pale to light tan undersurface.

Limitations: The ability to detect microorganisms by culturing can be affected by the following factors: improper specimen collection, storage, and inoculation, initiation of antimicrobial therapy prior to specimen collection, improper incubation temperature or duration, and improper storage and handling of the media.

Storage and Shelf Life: DermatoPlate® culture media should be stored at 2-25°C (36-77°F), protected from light with plates inverted. DO NOT FREEZE OR EXPOSE TO HIGH TEMPERATURES. Plates may also be stored at room temperature (60ºF/18º C) if used within 90 days of receipt or expiration date on the package, whichever comes first. Allow refrigerated plates to warm to room temperature before inoculating. Prior to and during inoculation procedures, plates should be handled in a manner that minimizes exposure of the media to the environment. Do not use expired product or plates that exhibit drying, cracking, discoloration, microbial contamination, or other signs of deterioration. The presence of excessive condensation may appear in plates that have been damaged by exposure to temperature extremes.

Technical Assistance: Additional product information and support may be obtained by calling (800)330-1522; (305) 253-1848 in Miami, or by e-mailing info@vetlab.com.

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