**Reference:** 101345ZA **Technical Data Sheet**

**Product:** **DTM (Dermatophyte Test Medium) Agar**

## Specification

Selective and differential solid medium used for the isolation and presumptive identification of dermatophytes.

## Presentation

| | Packaging Details | Shelf Life | Storage |
|---|---|---|---|
| 20 Prepared Plates<br>90 mm<br>with: 21 ± 2 ml | 1 box with 2 packs of 10 plates/pack. Single cellophane. | 3 months | 2-14 ºC |

## Composition

Composition (g/l):

| | |
|---|---|
| Soy peptone | 10.000 |
| Dextrose | 10.000 |
| Cycloheximide | 0.500 |
| Chlortetracycline | 0.100 |
| Gentamicin sulphate | 0.100 |
| Phenol red | 0.200 |
| Agar | 15.000 |

## Description /Technique

Description:

Dermatophyte is a medical term used to designate a particular group of fungi that infect the skin, hair and nails of humans and animals, causing various skin infections commonly known as "tineas." Any filamentous fungus isolated from culture samples of skin, hair and nails must be evaluated to determine the presence of dermatophytes. The dermatophytes are divided into three genera: Microsporum, Trichophyton and Epidermophyton, on the basis of their microscopic morphological differences and modes of sporulation. Species of these genera can be divided into three types by their normal habitat: Anthropophilic, are found only in human hosts and are transmitted from person to person; zoophilic are found in animals but can be transmitted to humans and geophilic, which can be found in the ground and may infect humans and animals.

Dermatophyte Selective Agar was proposed in 1969 by Taplin and colleagues for the isolation and presumptive identification of pathogenic dermatophytes. The medium contains a plant peptone providing carbon and nitrogen required for growth, while dextrose provides the energy source needed for metabolism. Cycloheximide inhibits saprophytic fungi that may be present in the sample, without affecting the growth of dermatophytes. Gentamicin is an antibiotic that acts on gram-negative bacteria, (including Pseudomonas) and Chlortetracycline is a broad-spectrum antibiotic acting on both gram-positive and gram-negative bacteria. This mixture of antimicrobials partially inhibits the growth of bacteria, yeasts and moulds that can contaminate samples and does not affect or has little effect on the growth of dermatophytes. In addition, the medium includes a pH indicator, phenol red, which is yellow-orange in acid medium and red in alkaline medium.

The growth of most dermatophytes results in the production of alkaline metabolites that cause the indicator to change from yellow to red, but there are non-pathogenic fungi (non-dermatophytes) that cause a colour change. Also there are some strains of microsporum that grow without altering the appearance of the medium. These other organisms that manage to grow in this medium can be recognized as non-dermatophytes both by their colour and colony morphology. The bacteria and few yeasts that may develop produce typically creamy white colonies. Saprophytic contaminants that sometimes cause colour change in the medium can be disregarded if they produce blackish-green coloured hyphae, since dermatophytes always produce white aerial hyphae.

However, as the final identification of dermatophyte is the microscopic observation of sporangia and verification of colour on the reverse of the colony, it is recommended that along with the Dermatophyte Selective Agar another medium for fungi e.g. Sabouraud Agar (with or without inhibitors) is inoculated simultaneously in order to verify these characteristics. Thus, DTM is used as an isolation and presumptive identification medium and Sabouraud as an isolation and confirmation medium.

Technique:

Skin samples or hair and nail samples are inoculated directly on the surface of agar and incubated at room temperature (25-30 ° C) for up to two weeks. Examine daily noting any possible change of colour in the medium. Most dermatophyte pathogens cause a colour change between the third and sixth day.

The appearance of white aerial hyphae and red coloured medium around the fungal growth should be interpreted as presumptive presence of pathogenic dermatophytes.

If there is growth but no colour change to red, the organism is probably not a dermatophyte but identification must be verified.

If growth appears only in the Sabouraud agar but not in the DTM, it is not a dermatophyte.

If the colonies have green or black hyphae they are not dermatophytes; although they may cause the DTM to turn red.

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## Quality control

### Physical/Chemical control

Color : Orange pH: 5.7 ± 0.2 at 25ºC

### Microbiological control

Isolation by loop spreading

Analytical methodology according to ISO 11133:2014/A1:2018; A2:2020.

Aerobiosis. Incubation at 25-30 ºC. Reading at 3-5 days.

| Microorganism | Growth |
|---|---|
| *Escherichia coli ATCC® 25922, WDCM 00013* | Inhibited |
| *Candida albicans ATCC® 10231, WDCM 00054* | Good |
| *Trichophyton mentagrophites ATCC® 9533* | White-pinked colonies, red media |
| *Trichophyton rubrum ATCC® 28188* | White-pinked colonies, red media |

### Sterility Control

Incubation 48 h at 30-35 ºC and 48 h at 20-25 ºC: NO GROWTH.
Check at 7 days after incubation in same conditions.

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## Storage

Storage conditions: 2-14ºC
Alternatively the plates may also be stored at the range of 2 - 25ºC, with a proper performance of the medium, but some precautions must be taken into account:
-In the range of 2 - 8 ºC avoid direct contact with surfaces that can freeze product.
-In the range of 15 - 25 ºC, dehydration control must be taking in account.