



SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

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ANTI FUNGAL DRUGS

An antifungal medication, also known as an antimycotic medication, is a pharmaceutical fungicide or fungistatic used to treat and prevent mycosis such as athlete's foot, ringworm, candidiasis (thrush), serious systemic infections such as cryptococcal meningitis, and others. Such drugs are usually obtained by a doctor's prescription, but a few are available OTC (over-the-counter).

There are two types of antifungals: local and systemic. Local antifungals are usually administered topically or vaginally, depending on the condition being treated. Systemic antifungals are administered orally or intravenously.

CLASSIFICATION

1. Antibiotics

a) Polyenes: Amphotericin B (AMB), Nystatin, Hamycin, Natamycin (Pimaricin)

b) Heterocyclic benzofuran: Griseofulvin

2. Antimetabolite: Flucytosine (5-FC)

3. Azoles:

a) Imidazoles (topical): Econazole, Miconazole, Clotrimazole, Oxiconazole, Ketonazole (Systemic)

b) Triazoles (systemic): Fluconazole, Itraconazole, Voriconazole

4. Allylamine: Terbinafine

5. **Other topical agent:** Tolnaftate, Undecylenic acid, Benzoic acid, Quiniodochlor, Ciclopirox olamine, Butenafine, Sod. thiosulfate.

MECHANISM OF ACTION

Antifungal Drug Class	Examples	Mechanism of Action
Polyenes	Amphotericin B Nystatin	Interacts w/ sterols in cell membranes forming channels that leak cellular contents
Antibiotic	Griseofulvin	Inhibits mitosis (sliding of microtubules) in fungi
Azoles	Fluconazole, Itraconazole, Ketoconazole, etc.	Inhibit ergosterol biosynthesis at the level of C14-demethylase
Allylamines	Terbinafine	Inhibit ergosterol biosynthesis at the level of squalene epoxidase
Thiocarbamate	Tolnaftate	Inhibit ergosterol biosynthesis at the level of squalene epoxidase
Antimetabolite	Flucytosine	Inhibit DNA and RNA synthesis via conversion of 5-fluorocytosine to 5-fluorocil
Profens	Flurbiprofen Ibuprofen	Direct damage to the fungal cytoplasmic membrane

AMPHOTERICIN

Amphotericin is an antifungal medication that fights infections caused by fungus. Amphotericin is used to treat serious, life-threatening fungal infections. It is not for use in treating a minor fungal infection such as a yeast infection of the mouth, esophagus, or vagina.

MOLECULAR FORMULA: C₄₇H₇₃N₁₇O₁₇

PROPERTIES

- It is a bright yellow powder.
- Odorless.
- Insoluble in water, anhydrous alcohol, ether.
- slightly sol in methanol.

STABILITY & STORAGE

Solids and solutions appear stable for long periods between pH 4 and 10 when stored at moderate temperature out of light and air.

USES

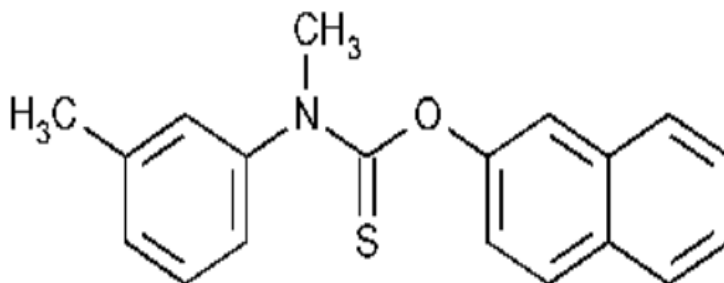
- It is an antifungal medication used for serious fungal infections and leishmaniasis.
- It is considered first line therapy for invasive mucormycosis infections, cryptococcal meningitis, and certain aspergillus and candidal infections

Brand Name: Fungizone, Fungizone For Tissue Culture, Amphocin.

TOLNAFTATE (INN)

Tolnaftate (INN) is a synthetic thiocarbamate used as an anti-fungal agent that may be sold without medical prescription in most jurisdictions. It is supplied as a cream, powder, spray, and liquid aerosol. Tolnaftate is used to treat fungal conditions such as jock itch, athlete's foot and ringworm.

STRUCTURE & IUPAC NAME



O-naphthalen-2-yl *N*-methyl-*N*-(3-methylphenyl)carbamothioate.

PROPERTIES

- Crystals or white powder.
- It is practically insoluble in water.
- Soluble in ethanol, acetone.

PACKAGING AND STORAGE

- Store below 40 °C (104 °F), preferably between 15 and 30 °C (59 and 86 °F), unless otherwise specified by manufacturer.
- Store in a tight container.
- Protect from freezing.

USES

- Tolnaftate stops the growth of fungi that cause skin infections, including athlete's foot, jock itch, and ringworm.
- Tolnaftate has been found to be generally slightly less effective than azoles when used to treat tinea pedis (athlete's foot).
- It is, however, useful when dealing with ringworm, especially when passed from pets to humans.

Brand Name

Absorbine Athletes Foot, Blis-To-Sol, Fungi-Guard, Mycocide NS, Tinactin, Tinaderm, Tinaspore.