

Antifungal Agent

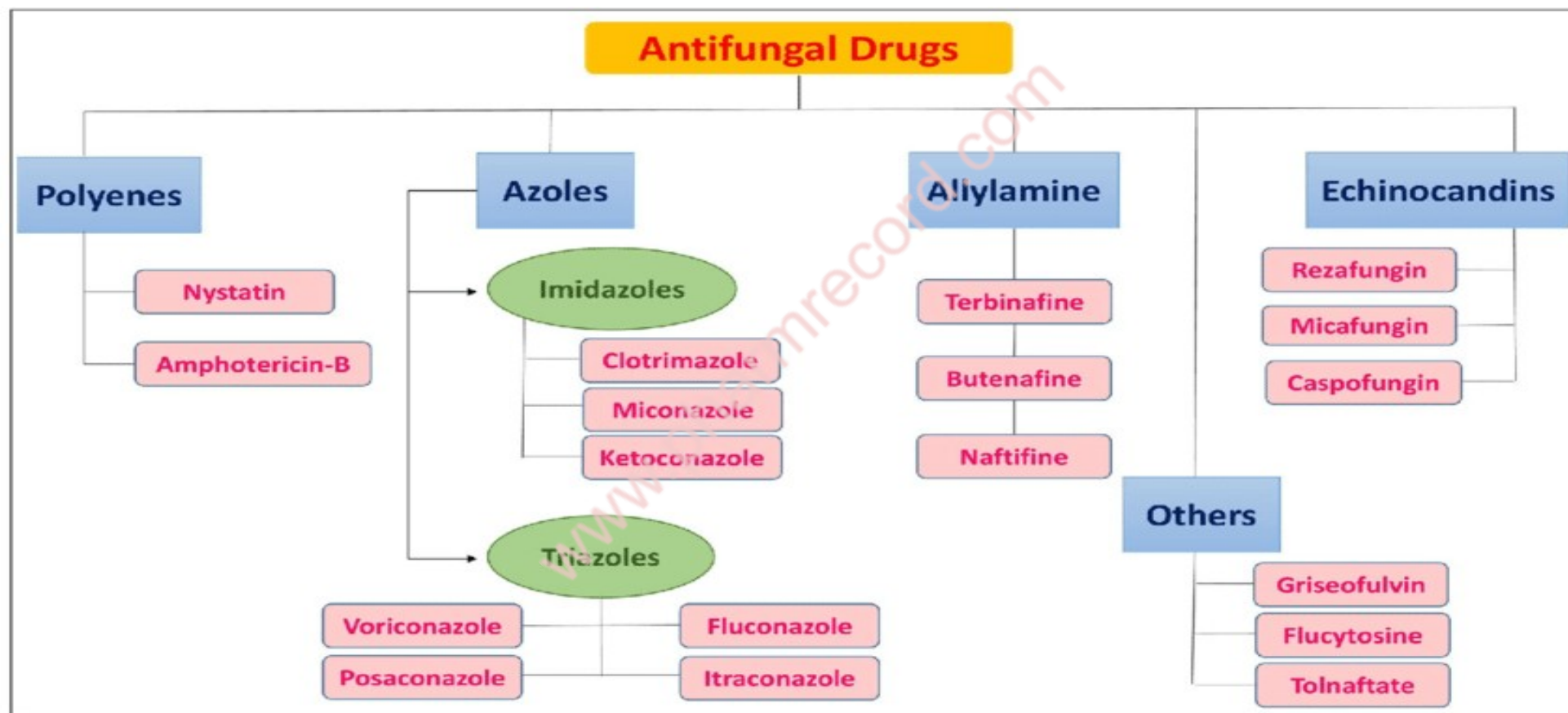
Presented By:-

Mr. Samarpan Mishra (Assistant Professor)
Specialization - Pharmaceutical Chemistry

Antifungal Agent ?

- ❖ An **antifungal agent** is any substance that **kills** or **inhibits the growth** of fungi.
- ❖ These agents are used to treat **fungal infections** (also called **mycoses**) in humans, animals, and plants.

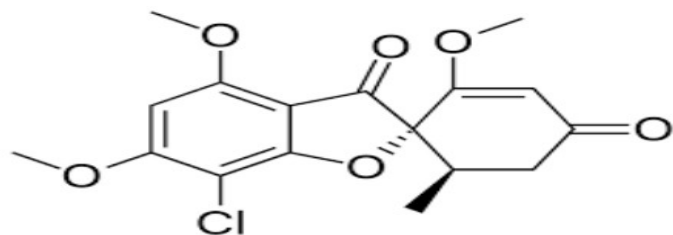
Classification of Antifungal Agent



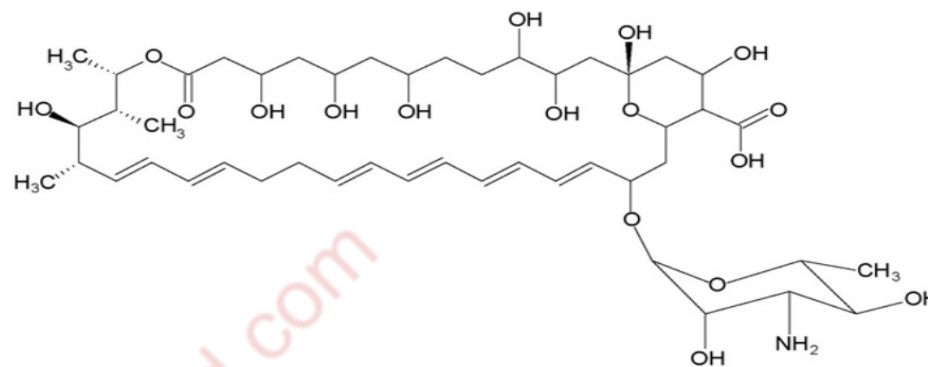
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Drug	Mechanism of Action (MOA)	Uses
Amphotericin B	Binds ergosterol → forms pores in fungal cell membrane → cell death	Systemic fungal infections (e.g., cryptococcosis, histoplasmosis)
Nystatin	Binds ergosterol → forms pores in fungal membrane → leakage	Topical/oral candidiasis (e.g., oral thrush, diaper rash)
Natamycin	Binds ergosterol → disrupts membrane integrity	Fungal eye infections (keratitis, blepharitis)
Griseofulvin	Inhibits fungal mitosis by binding microtubules	Dermatophyte infections (skin, hair, nails)
Clotrimazole	Inhibits ergosterol synthesis by blocking 14- α -demethylase	Topical candidiasis, dermatophytosis, tinea infections
Econazole	Inhibits ergosterol synthesis	Topical fungal infections (tinea, candidiasis)
Butoconazole	Inhibits ergosterol synthesis	Vaginal candidiasis
Oxiconazole	Inhibits ergosterol synthesis	Dermatophytosis (athlete's foot, ringworm)
Tioconazole	Inhibits ergosterol synthesis	Vaginal and topical fungal infections
Miconazole	Inhibits ergosterol synthesis	Cutaneous and vaginal fungal infections
Ketoconazole	Inhibits ergosterol synthesis	Systemic and topical fungal infections; seborrheic dermatitis
Terconazole	Inhibits ergosterol synthesis	Vaginal candidiasis
Itraconazole	Inhibits ergosterol synthesis	Systemic mycoses (e.g., histoplasmosis, blastomycosis)
Fluconazole	Inhibits ergosterol synthesis	Systemic and mucocutaneous candidiasis; cryptococcal meningitis
Naftifine hydrochloride	Inhibits squalene epoxidase → blocks ergosterol synthesis	Dermatophytosis (athlete's foot, jock itch)
Tolnaftate	Inhibits squalene epoxidase → blocks ergosterol synthesis	Dermatophytosis (tinea corporis, tinea pedis)

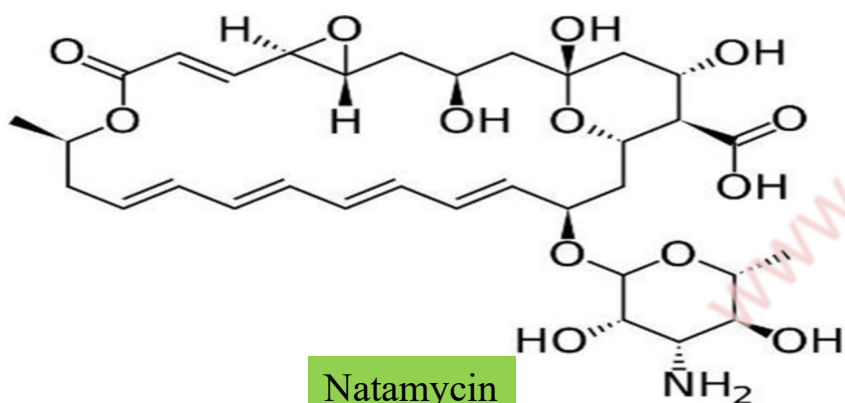
Structure of Antifungal antibiotics



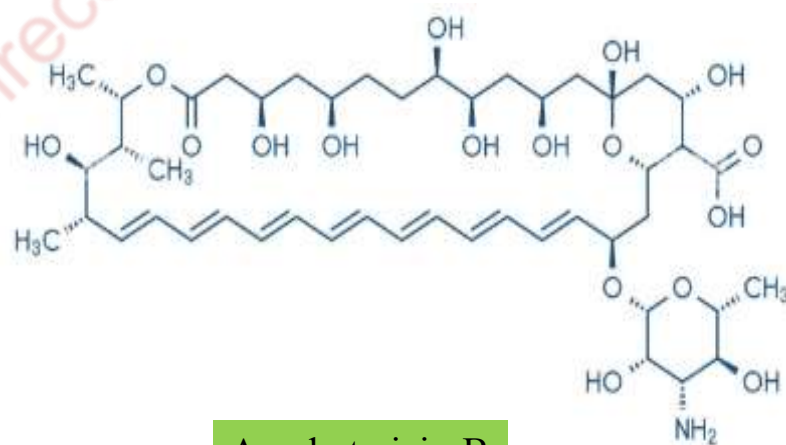
Griseofulvin



Nystatin

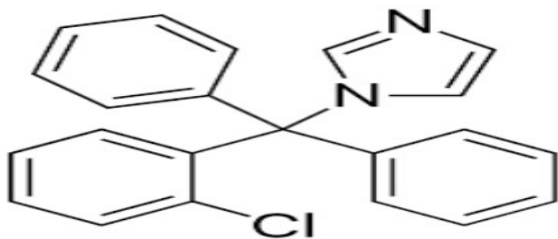


Natamycin

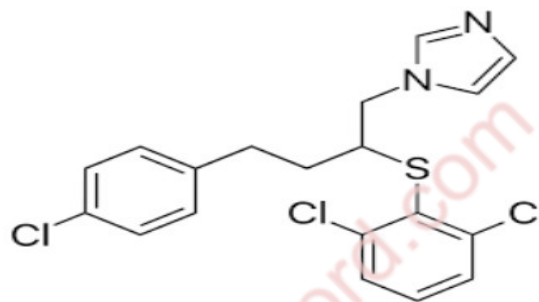


Amphotericin-B

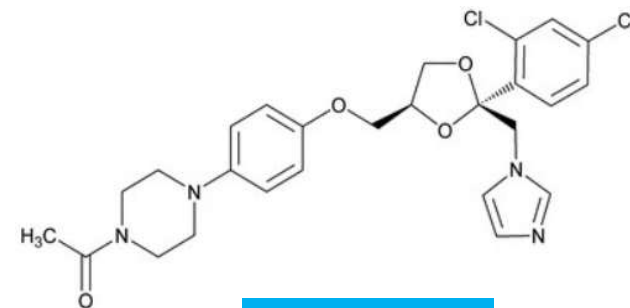
Structure of Synthetic Antifungal agents



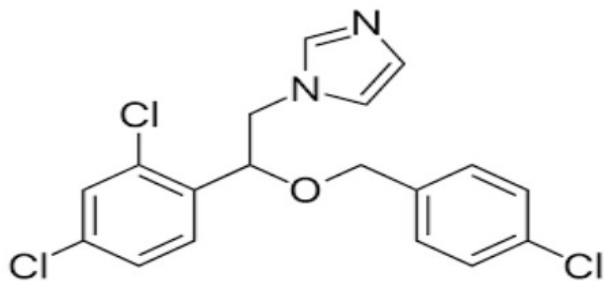
Clotrimazole



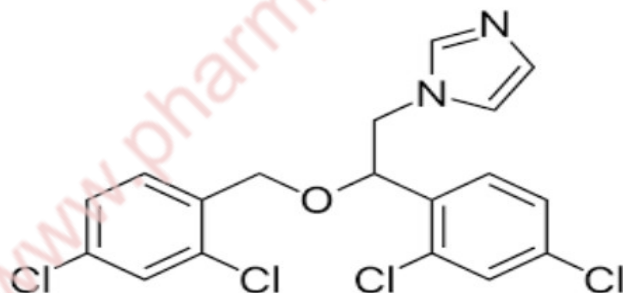
Butoconazole



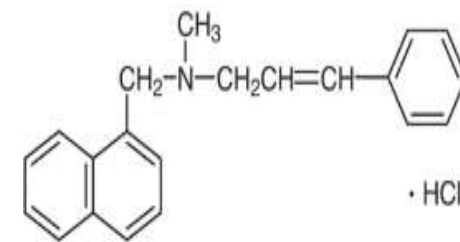
Ketoconazole



Econazole

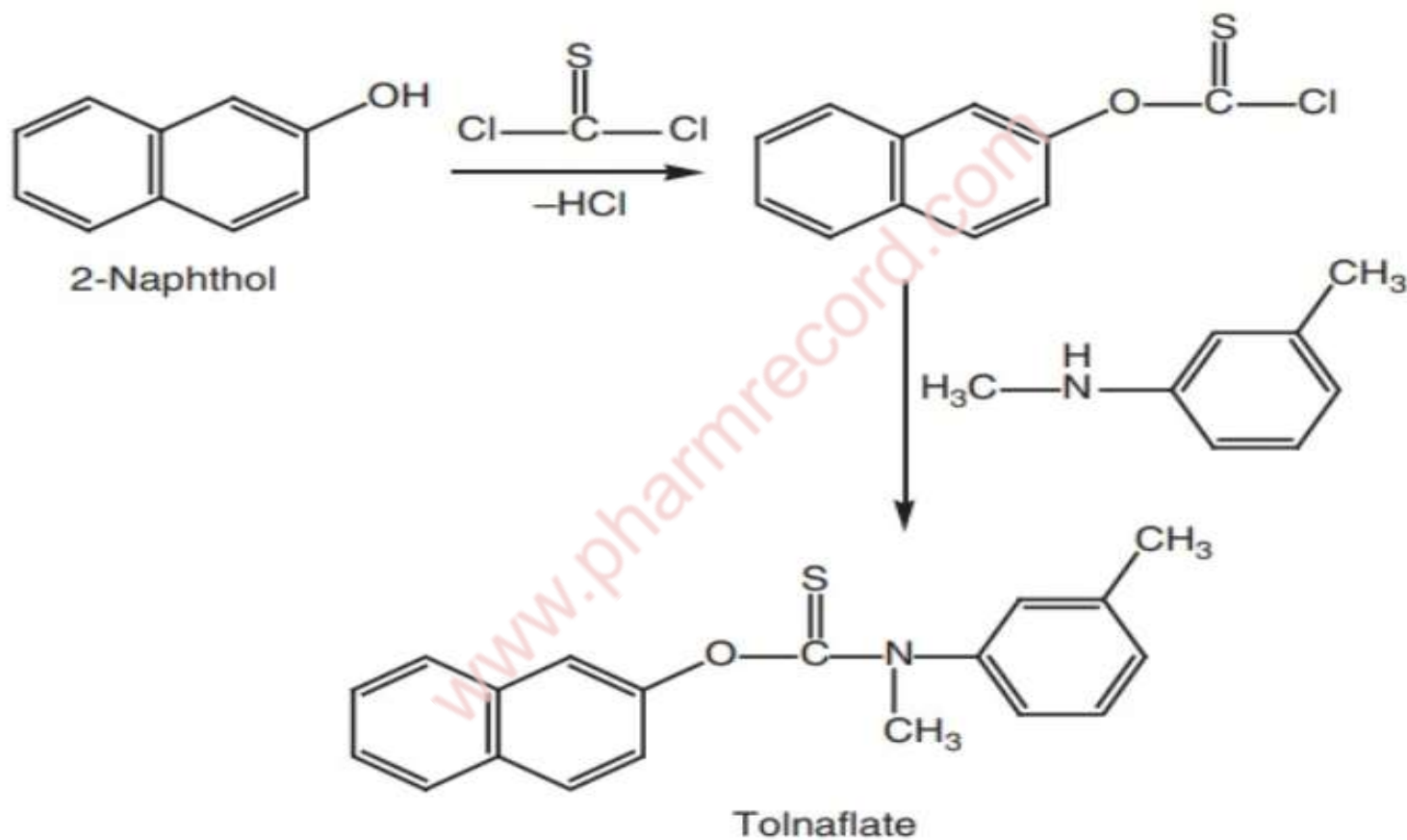


Miconazole

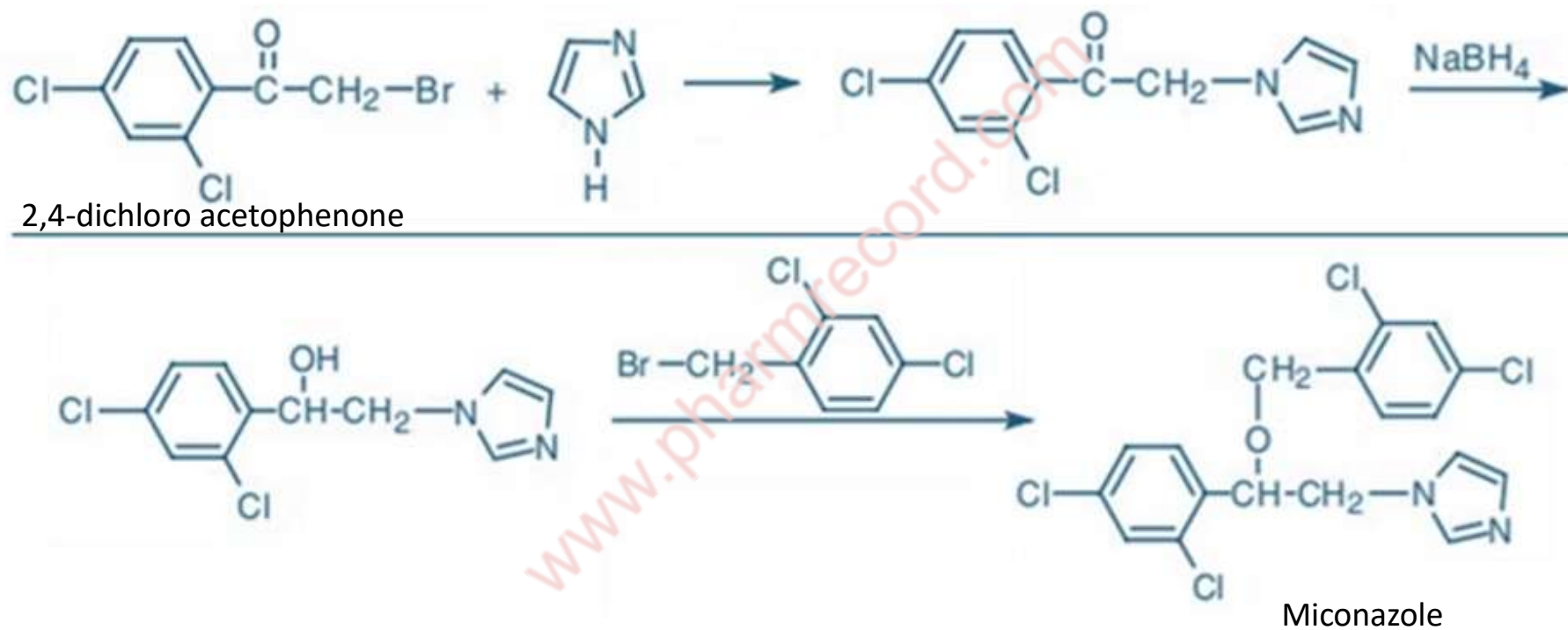


Naftifine hydrochloride

Synthesis of Tolnaflate



Synthesis of Miconazole



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Thank you