BIO 226N
Study Guide
Mycology

1. General characteristics

Fungus, fungi (molds and yeasts); eukaryotes; primitive plants; chitin in cell wall; non motile; 5-10 mm diam., nucleus; mitosis.

Tolerate dryness, high osmotic pressure; acidity and alkaline pH in the environment.

2. Colony types

Mycelium – hypha, hyphae
Yeast cells – spheres, buds
Aerobic respiration; $CO_2 + H_2O$

3. Organisms - Examples

A. *rhizopus nigricans* – coenocytic hyphae, sporangium, sporangiophore, sporangiospores
B. *Aspergillus niger* – septate hyphae, conidiospores, conidiophores
C. *Penicillium notatum* – penicillin
D. Mushrooms – Basidiomycetes
E. Yeasts – *Saccharomyces cerevisiae*
F. Actinomycetes –Filamentous prokaryotes; antibiotic production–ex. *Streptomyces*

4. Diseases – mycosis, mycoses

A. Infection of skin, hair, nails – dermatophytes secrete enzyme called keratinase which degrades keratin. Examples – ringworm and athlete's foot
B. Systemic mycoses – deep organs
   1. *Histoplasma capsulatum* – Histoplasmosis endemic in Ohio River Valley, Mississippi River Valley, dimorphic fungus
   2. *Coccidioides immitis* – Coccidioidomycosis; desert fever; 95% mild respiratory disease; 5% chronic respiratory, TB-like generalized infection; Central, South America, Sacramento Valley, CA.
   3. *Cryptococcus neoformans* – Cryptococcosis; infects lungs, respiratory tract of humans; can be disseminated into the central nervous system; can cause meningitis – inflammation of the meninges.

C. Opportunistic pathogens (infections)
Candida albicans – thrush or moniliasis

Pneumocystis carinii – causes Pneumocystis pneumonia in immunosuppressed patients.

5. Toxins – Mycotoxins

Aspergillus flavus – produces toxic compounds called aflatoxins – contaminates peanuts, grain, cereal, corn, etc.; carcinogenic.