Fungi in your Garden

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Fungi obtain their nutrition by absorption and are associated with all kinds of substrata

Rhizomorphs composed of hyphae (mycelium)

Major Groups of Fungi

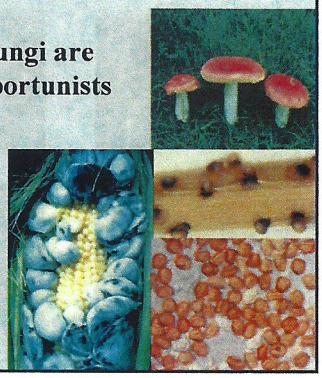
Basidiomycetes:
- Mushrooms
- Bracket fungi
- Mycorrhizae
- Rusts and smuts

Ascomycetes:
- Morels
- Truffles
- Yeasts
- Molds (asexual)
- Plant parasites

Other fungi:
- Chytrids (frog fungus)
- Mycorrhizae

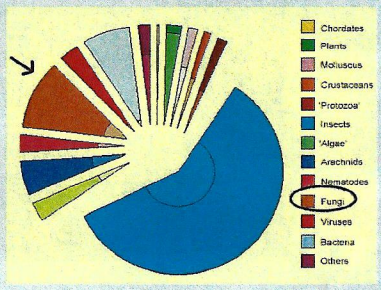
Fungal-like organisms:
- Plant parasites
- Water molds

Fungi are opportunists



Fungal Diversity

1.5 million species



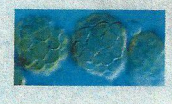
Amanita muscaria, fly speck mushroom
Basidiomycetes

Morchella esculenta, spring morel
Ascomycetes

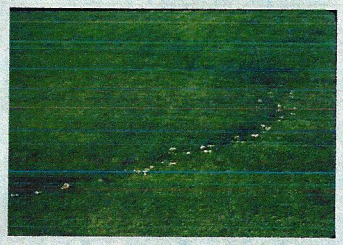
Fungi are ubiquitous, associated with many kinds of substrata, living and dead.

Fungi are decomposers i.e. break down dead organic (and some inorganic) matter to make the nutrients available for plant growth.

Fungi also occur on living plants and animals including humans.

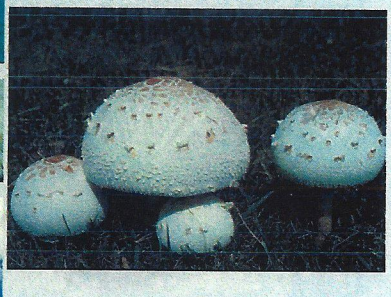


Fungi in Lawns



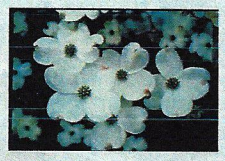
Mushrooms in a fairy ring

Chlorophyllum molybdites
Green-spored lepiota
Which major group?



Fungi on living trees

Most lichens are ascomycetes; they indicate clean air.

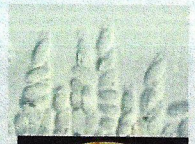


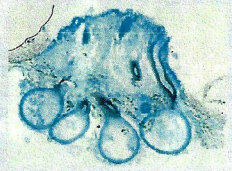
Dogwood anthracnose; plant parasitic ascomycete

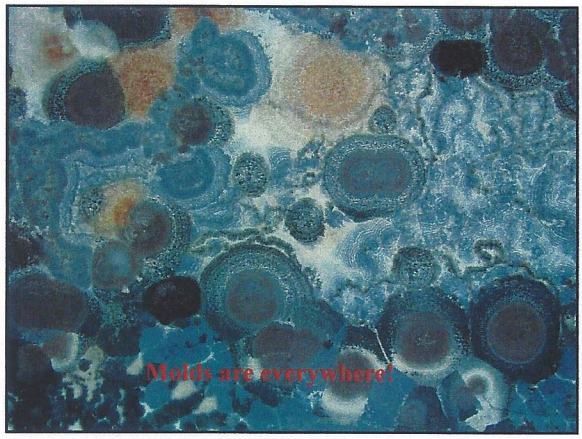
Chestnut blight caused by *Cryphonectria parasitica* (Ascomycetes, Diaporthales)

Introduced on logs in 1909 - within twenty years killed all mature chestnut trees in eastern North America

Cryphonectria parasitica, cause of chestnut blight
Virulence has never been overcome.
Which major group?





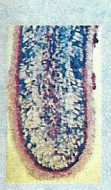


Fuligo septica
scrambled egg slime mold
common on mulch
Myxomycetes (fungus-like)


Fungi are essential for the growth of most living plants through mycorrhizae – fungi intimately associated with plant roots.

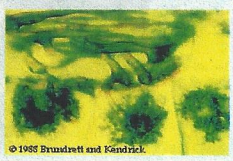
Many mushrooms are the fruiting bodies of mycorrhizal fungi.

Ectomycorrhizae
(mushrooms-which major group?)

Another kind of mycorrhizae are associated with herbaceous plants such as crop plants (if not heavily fertilized).

Glomeromycetes (major group - other fungi with chytrids-frog fungus)

Arbuscular mycorrhizae with vesicles and arbuscules
Glomeromycetes

Glomalin holds soil together

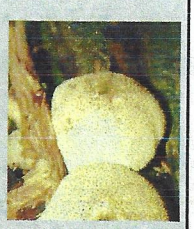


Common Fungi in Gardens

Basidiomycetes

gasteromycetes (stomach) fungi
mushrooms
rust fungi
jelly fungi
bracket fungi

Lycoperdon esculenta
edible puffball

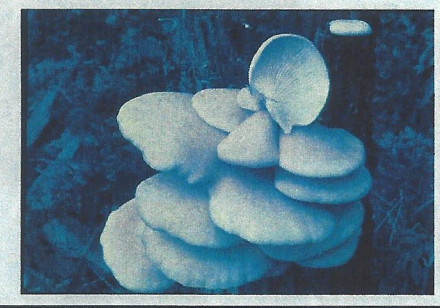
Fungi in Mulch

Sphaerobolus stellatus
artillery fungus

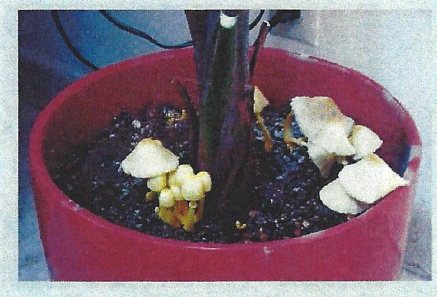

Cyathus striatus
bird's nest fungus


Armillaria mellea
honey mushroom

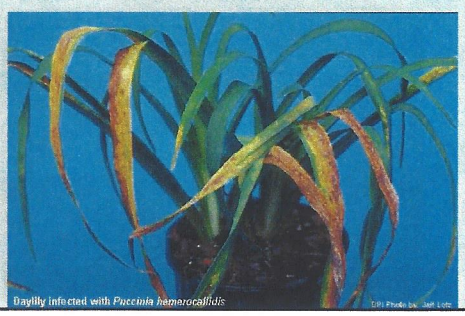
Pleurotus ostreatus
oyster mushroom



Lepiota lutea
yellow lepiota



Puccinia hemerocallis
daylily rust



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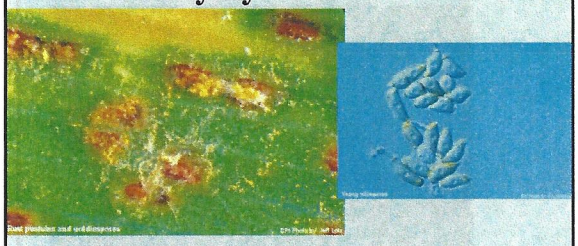
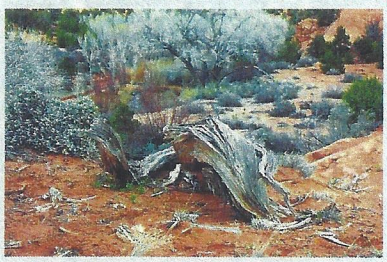
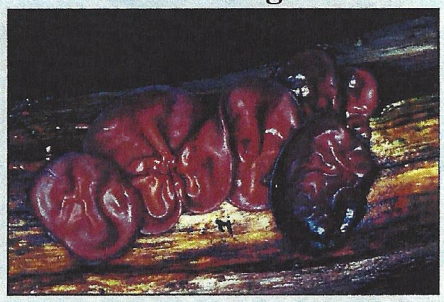


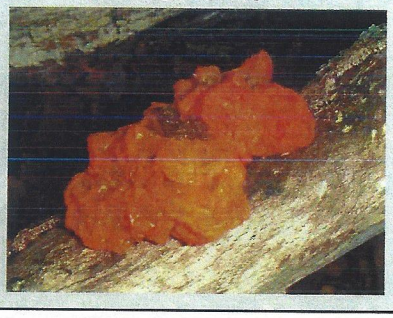
Fungi on dead wood



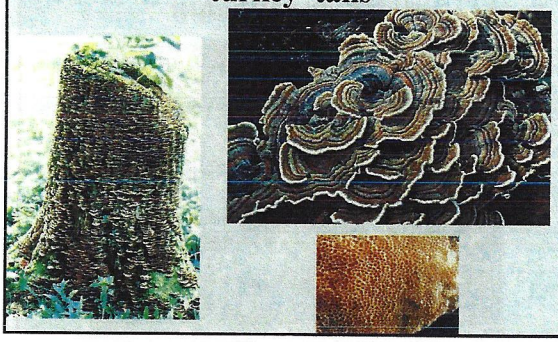
Auricularia auricula
tree-ear fungus



Tremella mesentarica
orange jelly



Trametes versicola
turkey tails



Ganoderma lucidum
reishi

Fomes fomentarius
tinder polypore

Laetiporus sulphureus
chicken of the woods

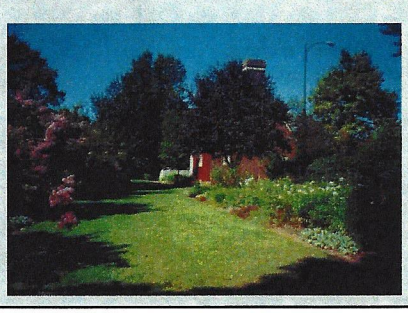
Common Fungi in Gardens

Ascomycetes especially their asexual states

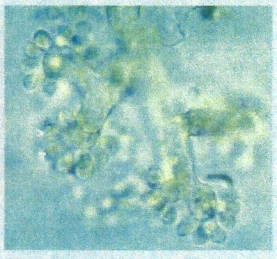
lichenized fungi
molds
leaf spot fungi
lots of plant pathogens!

Cladonia cristatella
British soldier lichen

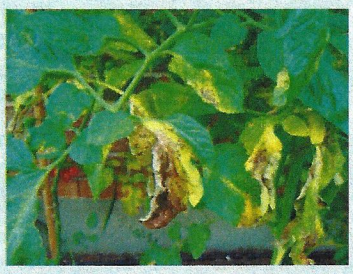
Fungi pathogenic on garden plants

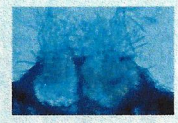


Botrytis cinerea
fruit and flower wilt

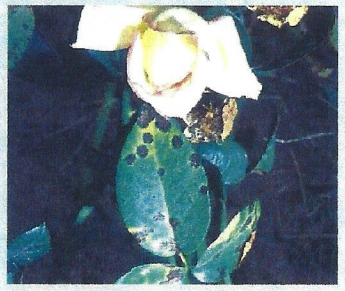


***Septoria* leaf spot of tomatoes**
Septoria lycopersici





Diplocarpon rosae
black spot of roses



Rhytisma acerinum
maple tar spot

Fungi occur everywhere associated with all kinds of substrata both living and dead.

Fungi are extremely useful to humanity but some are harmful.

Fungi are extremely diverse in nature and most are undiscovered.

As habitats are endangered, so are all the invisible but crucial organisms such as fungi.

To Learn More about Fungi

Tom Volk's Fungus of the Month
http://botit.botany.wisc.edu/toms_fungi/fotm.html

Mycological Association of Washington
http://mawdc.org/

USDA Graduate School and UMD courses on Mushrooms/Mycology

University of Maryland Plant Diagnostic Laboratory
http://www.plantclinic.umd.edu/