

# Remediation of PFAs using White Rot Fungus

Jerome Segura III, PhD  
Urban and Regional Economist  
Segura & Sons Mushroom Farm

February 29, 2024

Wisconsin Integrated Resource Management Conference  
Chula Vista Resort, Wisconsin Dells

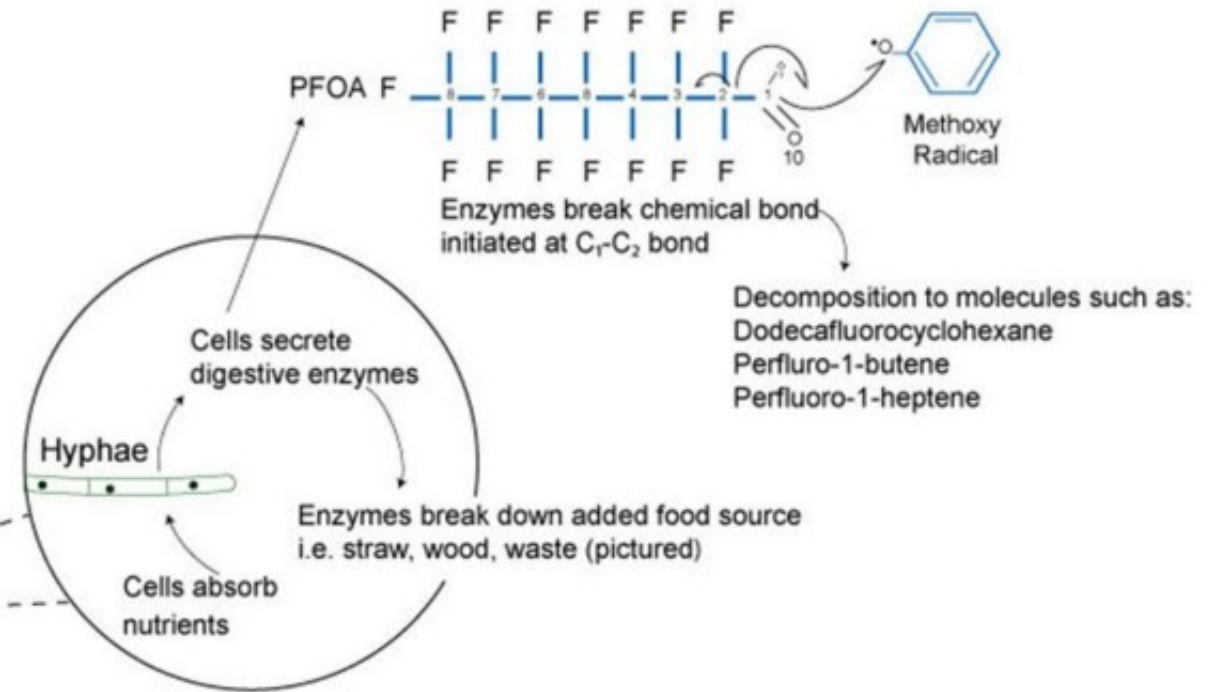
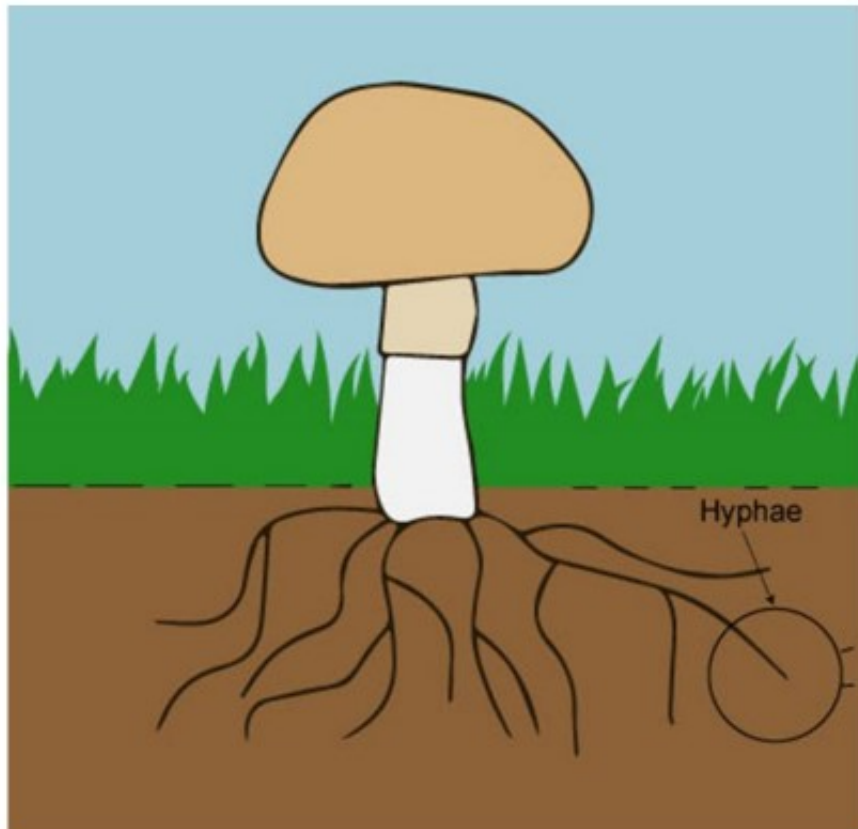


# Research Question

- Can mushrooms remediate PFAs in contaminated water?



# Mycoremediation of PFAS



# Motivation

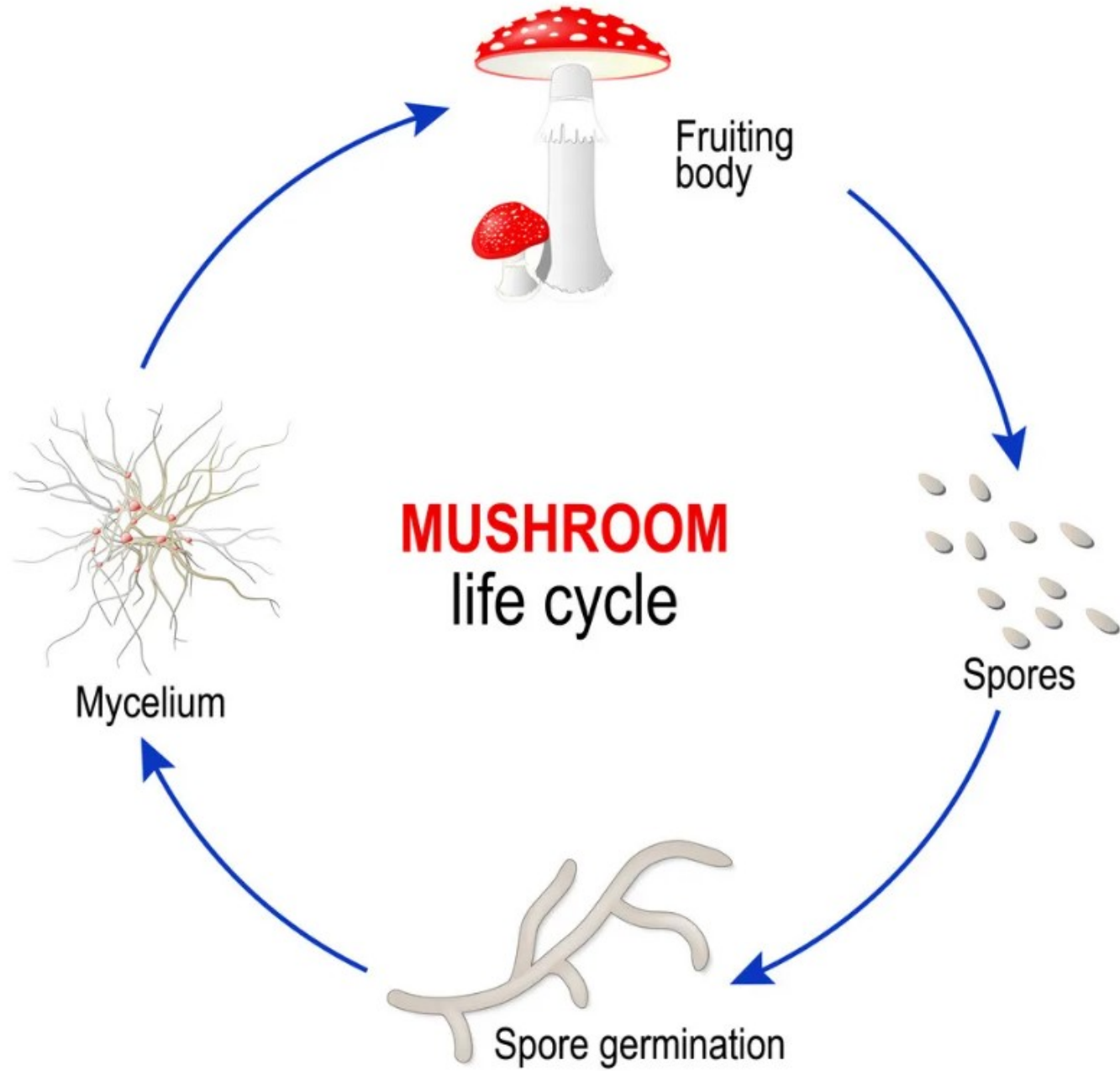
- Zhang (2021)
  - Remediation of the “Forever” PFAS Chemicals by a Fungal Filtering System
- PFAS Innovative Treatment Team (2021)
  - Potential PFAS Destruction Technology: Pyrolysis and Gasification

Project Funding by Marathon County Solid Waste Department

Collaborative Experiment Design with Northern Lake Service

# Ligninolytic Mushrooms

- Nonselective Digestive Enzymes
  - Break complex molecules down to elements
  - Hydrocarbons
  - Chlorinated Solvents







# Biological Filters

- Hardwood sawdust
- Reagent Grade Water
- ½ pound inoculant
  - Whole oats







# Results - Condensed

	A	O	P	Q
1			<u>Percent Change</u>	
2	Sample		PFOA	PFOS
3	Control			
4	Experiment		-64.53%	-96.91%
5	Experiment		-71.55%	
6	Experiment			-96.82%
7				

# Next Steps

- Phase 3 – an in the field application to demonstrate effectiveness in filtering PFAs from landfill leachate
- Pyrolysis and gasification of biological filters to demonstrate successful conversion into inert biochar

# Thank You

Contact: [SeguraMushrooms@gmail.com](mailto:SeguraMushrooms@gmail.com)

@SeguraMushrooms

