

# William Deng

## MUSHROOMS!

Chemistry, Pre-Engineering

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In a society that is driven by innovation and scientific inquiry, we learn how to observe, predict, alter, and mold nature into our various needs and desires. By simply observing everyday phenomenon such as the weather, we can develop intuition and knowledge of the subject at hand. Through trial and error, improvisation and educated guesses, we have developed methods, procedures, and guidelines to illuminate the path towards progress and assuage our intellectual curiosities. As we begin to understand and learn more and more of nature and our surroundings, we start to lose sight of the little things. Little things like mushrooms.

Mushrooms are able to survive and grow in some of the harshest conditions. I intend to explore mushrooms that are indigenous to the Great Barrington area and determine whether or not they possess any antibacterial or antioxidant properties. For the past two summers, I have interned for David Myers where I have grown fungi, separated mushroom samples into various components, and have begun determining the efficacy of possible antioxidants. For the antibacterial portion of this research, the process is much simpler. The mushroom extracts will be tested by placing the extracts



*Cerrena unicolor* by Rob Holz

in agar plates infected with certain bacteria. Then, by comparing the inhibition zones, it can be determined how much antibacterial work each sample possessed. If possible, I also hope to determine the exact identity of these unique properties. If a certain species exhibits strong antioxidant or antibacterial activity, I would like to devise a cost-effective, commercial operation to growing this species of mushrooms and extracting the desirable traits for consumption.

Mushrooms are said to be “miniature pharmaceutical factories” beneficial to both plants and animals. A particularly rare mushroom, located in the Pacific Northwest, is reported to have potential in treating smallpox, while another mushroom strain shows effectiveness against cowpox. Paul Stamets, a leading expert in mushrooms, owns a patent for which mushrooms are used as a natural pesticide. There are many more naturally occurring mushrooms that are overlooked or ignored. It would be in our best interest to spend some time to learn more about them.