

A Comparative Analysis of Reproductive Spores Found in Five Southeast Texas Mushrooms

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Abstract

The purpose of this project was to test the validity of fungal spore identity based upon morphological characteristics using a Hitachi S3400N Scanning Electron Microscope. The spores that were identified were taken from *Russula mariae*, *Russula sp.*, *Strobilomyces confusus*, *Strobilomyces dryophila*, and *Clitopilus prunulus* fungus. At Eastfield College the five species of fungal spores were micrographed using the Hitachi S3400N Scanning Electron Microscope. The spore micrographs were measured to determine the size, shape and surface textures of the spores. The spores varied in size as well as surface texture but all were found to be elliptical in shape. The largest spores observed were found in *Strobilomyces dryophila* which averaged 9.8936 microns in length and 9.1883 microns in width. The smallest spores observed were found in *Clitopilus prunulus* which averaged 5.7223 microns in length and 3.9610 microns in width.



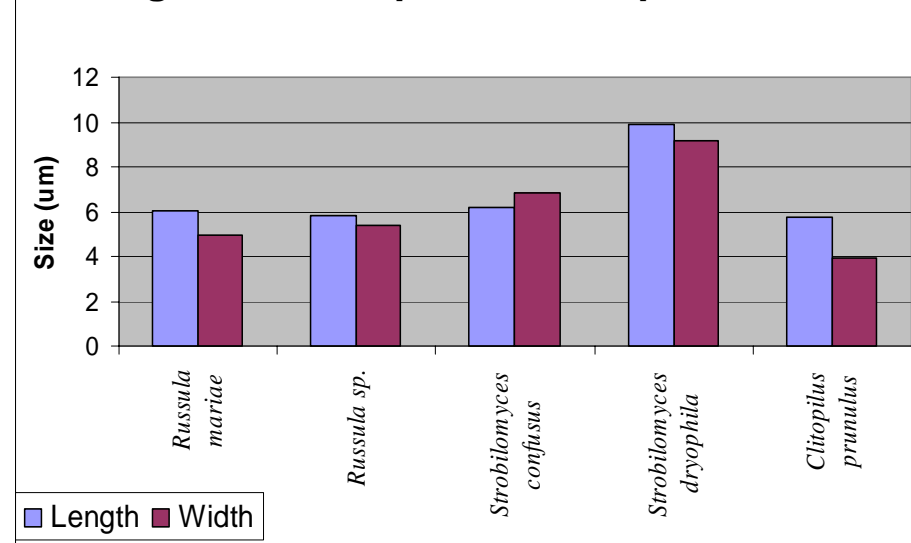
Introduction

The study of spore morphology provides a basic understanding of the diversity found in fungal spores. When spore-bearing fungi need to reproduce they do so by forcibly discharging their spores into their immediate environment, where they begin to grow into a new root like root-like system (1). This study provides a comparative analysis of reproductive spores found in five southeast Texas mushrooms. A scientific study can provide insightful information into the nature of fungi based on a series of specific results.

Methods

The fungi were obtained in Southeast Texas, in and around The Big Thicket National Preserve, during the years of 2006, 2007 and 2008. Upon collection they were placed into wax bags then transported to a research station where they were removed from the bags and dehydrated. They were then dissected to remove the spore covered gills. The gills were placed flat on top of the sample holder stubs and then analyzed on the Hitachi S-3400N Microscope. Micrographs were taken of the spores. The spores were measured and the surface texture observed. A comparison of spores was made.

Figure 1: Comparison of Spore Size



Results

All spores analyzed were found to be variable in size although they all had an elliptical shape. The spores of different genus' and species were determined to be unique because of the surface textures. Sizes shown in Figure 1.

Discussion

Although size variation occurs within each species it does not provide sufficient evidence to determine the identity of the fungus from which it originated. For example spores of the *Clitopilus prunulus* and *Russula mariae* (Figure 2) were elliptical based upon length and width measurements. Without micrographs and descriptive words, the measurements would only represent an ellipse; which is not unique to any spore type studied in this project.



Collecting specimens with David Lewis and Jessica Silva.



Identifying collected specimens.



David Lewis with Mona at the research station.



Left to right: Jessica, David, Brittany, Will, Godofredo, Knight

Literature Cited

1. Miller and Miller, (2006) North American Mushrooms Introduction 1-10

Acknowledgments

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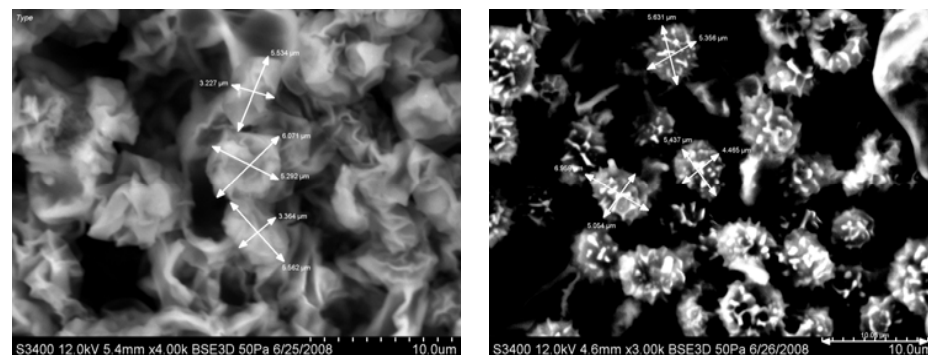


Figure 2: *Clitopilus prunulus* (left) and *Russula mariae* (right) are both elliptical in shape but are different in their size and surface textures.