



Center for Forest Mycology Research Culture Collection and Herbarium

The Center for Forest Mycology Research (CFMR) at the Forest Products Laboratory maintains a collection of more than 12,000 living cultures of wood decay fungi. The CFMR also manages a herbarium collection of 75,000 dried specimens of decay fungi. These collections are a valuable resource for scientists involved in durability studies—an important aspect of housing research.

Background

The identification of most wood decay fungi is difficult but essential for many studies on wood durability. Scientists must know which wood decay fungi they are working with to design informative experiments and properly interpret their results. When a fruiting body, such as a conk or mushroom, is present, mycologists use its microscopic characteristics to determine the identity of the fungus. However, the fungus frequently does not fruit, and only the thread-like, vegetative stage is present. This phase is even more difficult to identify than the fruiting body. Traditionally, mycologists would grow the culture on a series of different nutrient sources at different temperatures and over time look for specific microscopic characteristics. This was a very subjective procedure, and successful identifications were time consuming and difficult. Today, DNA sequencing is increasingly being used for identification of fungi. For either method, known, accurately identified reference specimens and cultures are essential for identification of unknown organisms. The CFMR culture and herbarium collections serve this purpose.

Objectives

The CFMR continues to build the herbarium and culture collections so that all wood-decay fungi are represented from a variety of habitats and climates. These collections provide scientists involved in durability research with cultures and specimens to aid in their studies.

Approach

Mycologists at the CFMR continue to collect new specimens and cultures of wood decay fungi as they conduct fungal biodiversity research throughout the world. These fungi are brought back to the Forest Products Laboratory and identified by experts who specialize in particular groups



Storing cultures in liquid nitrogen in the CFMR culture collection.

of organisms (for example, corticioid fungi, polypores, and agarics). Information about the culture or specimen is catalogued in an electronic database. Cultures are frozen under controlled conditions and maintained in liquid nitrogen to minimize genetic change and maximize longevity. Fruiting body specimens are dried and placed in the herbarium. The CFMR has successfully isolated DNA from dried specimens many years after collection.

Herbarium specimens are loaned to researchers from all over the world who are studying the taxonomy and biosystematics of wood decay fungi. Small numbers of cultures are given to researchers at no charge as a professional service. Industrial users are encouraged to purchase equivalent cultures through the American Type Culture Collection. In some situations, CFMR has entered into collection agreements with pharmaceutical companies interested in screening large numbers of our cultures to locate organisms with unique medicinal or biotechnological properties.

Outcome

Cultures from CFMR serve as standards for many ASTM test protocols and other standard test procedures. Our cultures and specimens are used all over the world by durability researchers and mycologists interested in the taxonomy, physiology, biochemistry, ecology, and genetics of wood decay fungi. As the largest collection of wood decay



fungi in the world, CFMR serves an important reference for the research community.

The herbarium and culture collection are institutional facilities and are permanently maintained. The database for the culture collection is complete; information on new cultures is added as the cultures are collected and processed. The database for the herbarium specimens is currently under construction.