

Abstract

Here we propose to perform a survey of potentially pathogenic *Fusarium* species in plumbing fixtures and indoor environments across the eastern United States. *Fusarium* is capable of causing a wide variety of plant diseases, but it is also known to cause infections in humans. They are often fatal in people with weakened immune systems and are the most common cause of fungal keratitis (corneal infections) in much of the world. There is strong genetic evidence suggesting that *Fusarium* infections can be contracted from indoor environments, including hospitals. In a recent outbreak of fungal keratitis involving hundreds of contact lens wearers, *Fusarium* isolates from infected individuals tended to match *Fusarium* species previously associated with human infections, and also those isolated from habitats such as sinks, showers, and water tanks. Relatively little work has been done to look at their diversity in the indoor environment, particularly in plumbing, which appears to be an important source of inoculum.

This project will generate a profile of genetic diversity of indoor environmental fusaria collected across the southeastern U.S. *Fusarium* isolates will be collected from homes and from public buildings, and then be subjected to DNA sequence analysis to determine their genotypes. Their diversity will be catalogued, compared to the diversity of isolates known from human infections, and made available to the public through our online identification database, FUSARIUM-ID (<http://isolates.fusariumdb.org>). The results of this study will be an important tool for characterizing the differences among environmental isolates that predispose them to causing human infections, such as antifungal drug resistance and biofilm formation.