

Methods for the Detection of Fungi and Protozoa in Water and Tissue Samples

Researchers at the University of South Florida have developed improved methods for the detection and diagnosis of various fungi and protozoa.

Opportunistic parasites can cause a wide variety of infections in the human body. While these microorganisms can infect healthy individuals, severe infections are more common in people with weak immune systems including children and senior citizens. Patients with compromised or suppressed immune-systems including HIV-infected individuals, cancer patients, and organ transplant recipients are also at risk.

Several inadequacies have been observed in methods currently used in the identification of such infectious agents. Serological tests produce high false-positive results in immuno-deficient individuals, who are often incapable of eliciting adequate and specific immune responses. Histochemical staining methods also produce high false-positive results since the commonly used dyes tend to stain a variety of fungi species indiscriminately. Transmission electron microscopy, a gold standard method, is time consuming and not practical for routine clinical uses. Similarly, immunofluorescence and polymerase chain reaction (PCR) require special equipment and trained personnel, and therefore have limited applications beyond most research laboratories. Altogether, the need for an accurate, sensitive, and convenient clinical assay capable of detecting these microorganisms is urgent and imminent.

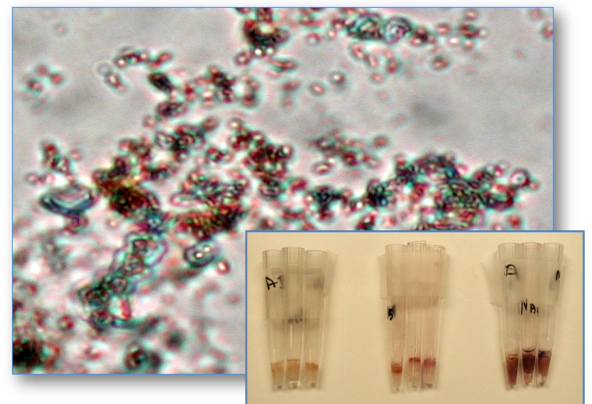
Our researchers have developed a set of methods that are applicable to fungal and protozoan detection in both environmental and biological samples. The first protocol involves a staining procedure that is sensitive to fungi and protozoa due to the presence of chitin in the composition of these organisms. The second method entails affinity column chromatography using chitin binding beads or fibers for the isolation and detection of fungi or protozoa.

Both techniques are rapid, specific and sensitive methods that could be used as routine tests for the detection of chitin-containing microorganisms in media and tissue.

ADVANTAGES:

- **Adaptable to detection of various fungi**
- **Useful in testing human and animal subjects**
- **Easy and fast acting staining techniques**
- **Applicable as routine detection tests**

Detect Fungi and Protozoa in Biological and Environmental Samples



Improved staining of microsporidia aids in screening and identification. Column based collection, enrichment, and detection of microsporidia from 100uL of blood.

Tech ID # 02A034 & 09A061

Patent #: [8,580,934](#); [8,609,365](#)

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