

AIR, Test Code 1098-Cryptococcus & Total Fungal Count with Identification

Cryptococcus is a fungus that grows as yeast in culture. *Cryptococcus* can be found in construction dusts and contaminated bird droppings. Certain species can cause meningitis in immune compromised individuals.

Cryptococcus is commonly used as a surrogate for *Histoplasma capsulatum*, a microfungi that is endemic in the soil in the US but particularly the Ohio River valley. *Histoplasmosis* is often associated with underlying immune disorders or children under the age of two. *Histoplasma* is difficult to culture in an environmental microbiology laboratory because it takes approximately six to eight weeks to grow and during that time the saprophytic fungi found in environmental samples overgrow the culture and makes detection difficult. *Histoplasma* thrives in nitrogen rich matter, in particular bird droppings and guano and the spores are readily aerosolized and disseminated.

This air culture is a two-plate protocol, Malt Extract Agar and Sabouraud Dextrose Agar.

1. Calibrate each sampling pump or piece of equipment by following manufacturer's recommendations.
2. Before each run, thoroughly wipe each sampler stage with rubbing alcohol. Allow to dry. Make sure air passages are not blocked.
3. Load and immediately unload one set of sampling media in each sampler to serve as field blanks.
4. Label agar side of plate with identifier. Remove cover from media, load sampling media into sampler, and attach sampler to pump with flexible tubing or if using a SAS sampler screw the top back onto the sampler. NOTE: Take special care to prevent contamination of media during loading and unloading. Do not touch agar surface.
5. **Sample at known preset flow for an accurately known time, e.g., 5 min.** Rotary vane pump should run at 28.3 lpm. (In heavily contaminated areas, sampling time may be adjusted). Both MEA and Sab-Dex plates must be collected with the same air volume.
6. Replace covers on sampling media. Tape plate or place each plate in separate bag, and pack securely (media side up).
7. If plates are going to be shipped back to the laboratory send them for overnight delivery in a cooler with an ice pack. If plates are not shipped that day keep the plates in the refrigerator until they are shipped the next day.

References:

Dillon, H. Kenneth, L. Hung, J. Miller, Field Guide for the Determination of Biological Contaminants in Environmental Samples., 5.2.6.6:61, 7.1: 141-143 (2005).

NIOSH Manual of Analytical Methods (NMAM), Fourth Edition Method 0800 January 15, 1998