

Sampling Methodologies for monitoring outdoor culturable airborne fungi from five locations on Hawaii.

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A diverse population of organisms contributes to ecosystem development following volcanic eruptions. Transport of fungal spores through the atmosphere may represent an important source of micro-organisms at volcanic sites during early stages of succession. However, information concerning the population of airborne fungi associated with volcanic landscape is limited. A monitoring study was performed to determine the population of airborne fungi at a series of location on the Big Island in the Hawaiian chain, site of recent and past active volcanic activity. Air samples for culturable fungi were collected at five sites ranging from approx. 3 m to 3300 m above sea level using the Andersen single-stage impactor sampler (57 L of air sampled) and the SAS Super 100 (500 L and 1000 L of air sampled). Air samples were collected onto 2% Malt Extract Agar amended with chloramphenicol (100 ug / mL, final concentration) and the agar plates were incubated at 25°C for 5-7 days after collection. *Penicillium* and *Fusarium* were speciated using additional media and incubation conditions. Approximately 12 identifiable genera, yeast, non-sporulating mycelia, and fungi that could not be identified were isolated. *Cladosporium* was the predominant organism at the most remote site (Mauna Loa Volcano). *Cladosporium fusarium* and *Geotrichum* predominated at the two coastal sites. The SAS sampler proved to be more convenient than Andersen for sampling at remote sites due to the internal battery providing the needed power, but some of the SAS plates were too numerous to count due to overcrowding and high concentration of fungi. These data demonstrate that there are airborne fungi transported to volcanic sites and their contribution to succession should be studied further.

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