Detection of trichothecene mycotoxins in sera from individuals exposed to Stachybotrys chartarum in indoor environments


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Abstract

To date, no study has effectively demonstrated a direct human exposure to mycotoxins in mold-contaminated buildings. Therefore, the authors investigated the presence of trichothecene mycotoxins in sera from individuals exposed to indoor molds (specifically Stachybotrys chartarum). Sera from occupants of contaminated (test samples, n=44) and uncontaminated (control samples, n=26) buildings were analyzed using a competitive enzyme-linked immunosorbent assay (ELISA) highly specific for macrocyclic trichothecenes. Twenty-three samples were significantly different (p < 0.05) from normal human serum tested in the same manner, whereas only 1 of the control samples tested positive. Mass spectrometry analysis could not confirm the presence of intact S. chartarum macrocyclic trichothecenes. The authors hypothesize that this result was caused by uncharacterized ELISA-reactive metabolic breakdown products. Data from this study suggest that trichothecene mycotoxins can be demonstrated in the tissues of certain individuals exposed to S. chartarum in contaminated buildings.

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