**Ecological determinants of the aeromycota in urban Sydney.**

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**Abstract**

**Background**
The absence of a broad ecological assessment of the factors that are associated with the species distribution and density of the aeromycota of urban Sydney is a gap in our knowledge that has significant human health consequences.

The research presented here addresses the multiple factors that contribute or influence the airborne fungal assemblage in Australia’s largest city.

**Method**
Several sites with a range of varying characteristics were sampled for culturable airborne fungi and a range of physiochemical air quality variables monthly for one year. Both outdoor and paired indoor air was sampled.

**Results**
Using ecological data analysis techniques, we identified the primary factors associated with fungal species diversity, propagule density and species distribution. As has been the case with research from other cities, there were major seasonal changes in the species distribution detected; although samples from most months were dominated by spores from *Cladosporium* spp. Pathogenic fungi were sparsely distributed in the data set, although *Aspergillus* spp. including *A. fumigatus* was detected in several samples. Factors that were associated with changes in total spore density includes some, but not all types of urban greenspace.

**Conclusion**
Our research has detected several previously unknown environmental variables associated with high airborne spore numbers, and advances our understanding factors that influence the aeromycota of urban Sydney.