

# **The influence of sampling duration on recovery of viable fungi using the Andersen N6 and RCS Biotest bioaerosol samplers**

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This study compared the performance of two biological aerosol samplers: the Andersen N6 single-stage sampler and the Reuter Centrifugal Sampler (RCS). To assess performance, viable airborne fungal particles were collected in buildings at the University of Toronto, St. George campus. Fifteen samples of incrementally increasing duration from 1 min to 15 min were collected with both samplers operating side-by-side. The RCS was used as a reference sampler to compare the recovery of fungal colonies in quantity and in the range of fungal genera collected. Samples were collected on nine sampling dates, resulting in a total of 270 samples. Overall, 26 fungal genera were found. Species of *Alternaria*, *Aspergillus*, *Cladosporium*, *Epicoccum*, *Penicillium*, *Ulocladium*, Yeast and sterile mycelia occurred with the greatest frequency. The samplers were compared considering time as a factor and considering the differences between the samplers themselves. Probabilities less than 0.05 were considered significant. To observe any additional trends, the data was also analyzed by grouping genera according to high and low water activity ( $a_w$ ). A significant difference between samplers was found for *Alternaria* spp., *Aspergillus* spp., *Cladosporium* spp., high  $a_w$  and low  $a_w$  genera. Except for *Cladosporium* spp., recoveries were greater with the RCS than with the Andersen N6. The effect of sampling duration on recovery was analyzed by testing the significance of the slope of the line modeled for each sampler. The slope of the line for the Andersen N6 sampler was significantly different than zero for *Ulocladium* and Yeast, and for *Aspergillus*, *Cladosporium*, *Penicillium*, *Ulocladium* and Yeast for the RCS. The model estimates these slopes to be negative, suggesting that recovery declines with increasing sampling duration.