

# 18th SYMPOSIUM ON CRYPTOGAMIC BOTANY

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## ABSTRACTS BOOK

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## OUTDOOR AIRBORNE ALTERNARIA CAPTURED BY FOUR DIFFERENT VOLUMETRIC METHODS

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**Introduction:** *Alternaria* spread their conidia through the air, cause problems as plant pathogen and they are one of the main causes of fungi allergy. The aim of this work is to assess the differences of airborne *Alternaria* presence using non viable and viable methods with different samplers.

**Methods:** Sampling was carried out for two years, from March 2009 to March 2011, on a terrace at 16 m high at the Faculty of Science of University of Extremadura, in Badajoz (SW Spain). A total of 100 samples were taken with a weekly frequency at solar noon. Colonies were recorded using three different sampling methodologies: Burkard personal sampler for Petri dishes with a 100 holes sieve, the same sampler but without sieve, and Sampl'air AES Chemunex sampler with a 258 holes sieve. Burkard personal sampler operated with a 20 liters/minute intake flow and Sampl'air operated with a 100 liters/minute intake flow, sampling with the former lasted 10 minutes and with the latter 1 minute. As media culture SDA was used the first year and MEA the second one. Spores were recorded using a seven day Burkard sampler that operated continuously, although only data from the same moment of viable sampling were used.

**Results:** On average, using daily data, *Alternaria* spores appeared with a concentration of 18.5 spores/m<sup>3</sup>, with maximum in summer (29.3 spores/m<sup>3</sup>) and minimum in winter (1.3 spores/m<sup>3</sup>). Maximum hourly concentration appeared between 11:00-12:00 solar hours, with 38.8 spores/m<sup>3</sup>, and minimum between 5:00-7:00 solar hours, with 8.1 spores/m<sup>3</sup>. Average of colonies forming units per cubic meter (CFU/m<sup>3</sup>) depended on the sampler. The highest concentration was recorded with Sampl'air sampler, 35.6 CFU/m<sup>3</sup>, and the lowest with Burkard sampler with the sieve, 10.6 CFU/m<sup>3</sup>. Using viable methodology spring was the season with the highest concentrations, and then by order autumn, summer and winter. Nevertheless spores recorded at the same moment with no viable methodology showed that the highest concentration appeared in autumn, and then spring, summer and winter. Comparing data from non viable with viable methods there is no correlation, but comparing data from viable methods there is statistically significant correlation between samplers used.

**Conclusions:** It seems that there is not a unique method to assess airborne fungi concentration. Non viable methods claimed that propagules capture not depend on their viability. Viable methods could show different results depending on the sampler used. In our case, no differences were found using SDA and MEA for *Alternaria*, nevertheless the sampler with the highest flow rate and more number of holes in the sieve provided the highest number of colonies, even more than spores recorded through non viable sampling. The latter observation could mean that some colonies could appear from fragments of hyphae.

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