

# 18th SYMPOSIUM ON CRYPTOGAMIC BOTANY

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## ABSTRACTS BOOK

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## HOURLY AIRBORNE SPORE CONCENTRATION IN RAINY DAYS

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**Introduction:** Airborne presence in the atmosphere depends on sources and environmental conditions, although they can follow a seasonal pattern this can be modified by meteorological factors. Rain often wipes particles out from the atmosphere, nevertheless some fungi take advantage of this situation and disperse their propagules, as many ascospores, through a mechanical process. To show how close is the relationship between rain and dispersion it is necessary a continuous sampling along with rain at the same place, furthermore to interpret results other meteorological parameters should be taken into account.

**Material and Methods:** Atmosphere were sampled for a year using a volumetric spore trap close to an automatic meteorological station, both of them at ground level. The intake hole from the spore trap was situated at 1.5 m high. Sampling was taken in Badajoz (SW Spain), at the Faculty of Science campus, from March 2009 to March 2010. Hourly spore concentration were analyzed for rainy days, data were compared with meteorological parameters: rain, air temperature, ground temperature, wind speed, wind direction, relative humidity, and radiation. 25 fungi spore types including hyphae as propagules were studied, they were selected according to a threshold spore concentration of 20 spores/m<sup>3</sup> on average for the period of study.

**Results:** Five fungi spore types showed a positive correlation between hourly concentration and rain: *Leptosphaeria*, *Massaria*, *Pleospora*, *Venturia*, and *Amanita*, all of them ascospores types except the last, in this case includes basidiospores. For those fungi spores hourly relative humidity (RH) showed a similar relationship, nevertheless this meteorological parameter showed negative correlation in most of conidia studied, as in *Cladosporium cladosporioides*, *Cladosporium herbarum*, *Alternaria*, *Drechslera*, *Cerebella*, the teliospores of *Ustilago*, and hyphae; notwithstanding, for some other basidiospores as *Agrocybe* and *Boletus* this relationship with RH was positive. Hourly temperature showed an opposite effect to RH, being mainly positive in conidia and teliospores and negative in some ascospores. *Aspergillus-Penicillium* type did not showed any relationship with meteorological parameter in rainy days.

**Conclusions:** Meteorological conditions in rainy days showed that rain affect negatively to the majority of fungi spores, wiping out the atmosphere of any airborne particle, nevertheless, ascospores showed a clear increase in their concentration just in the same moment of rain.

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