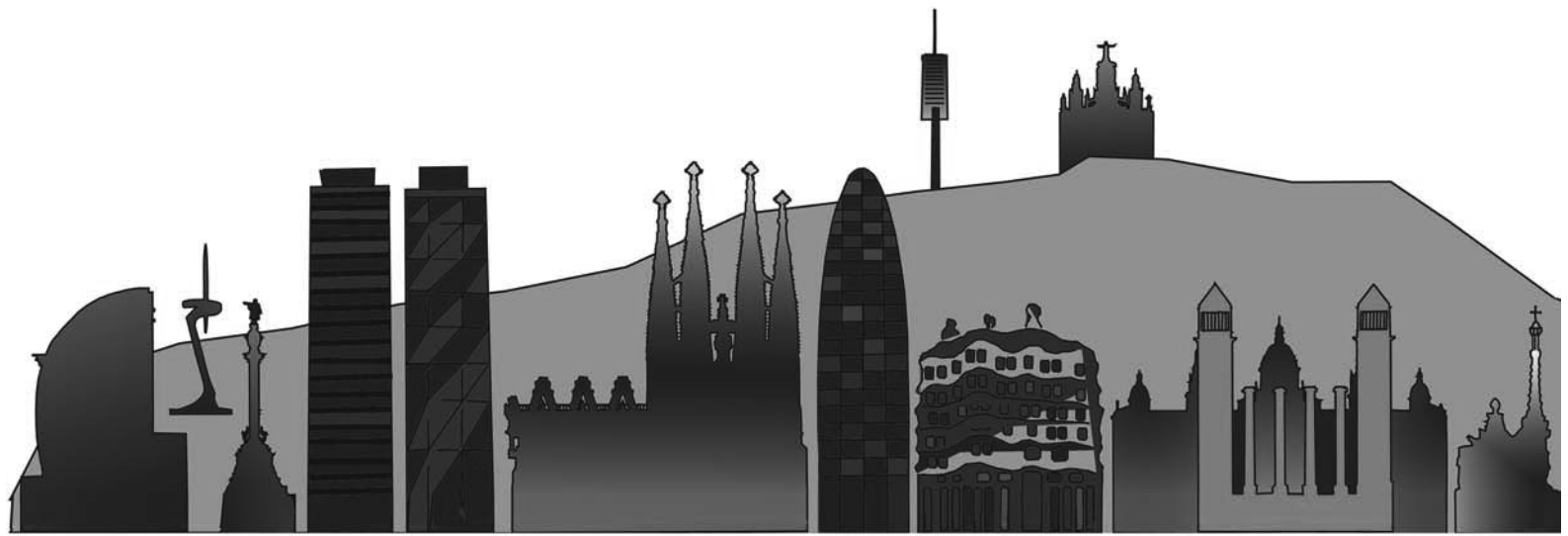
MedPalyno 2017

Mediterranean Palynology
APLE-GPPSBI-APLF Symposium
Barcelona, 4-6 September 2017

Abstracts Book



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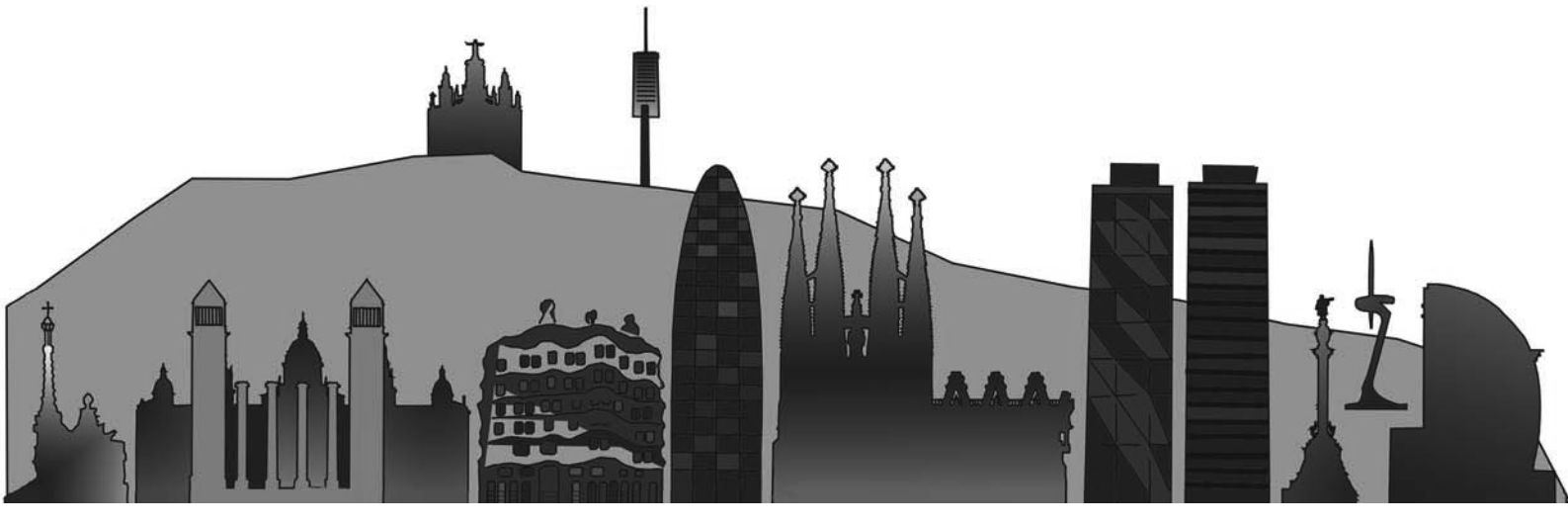

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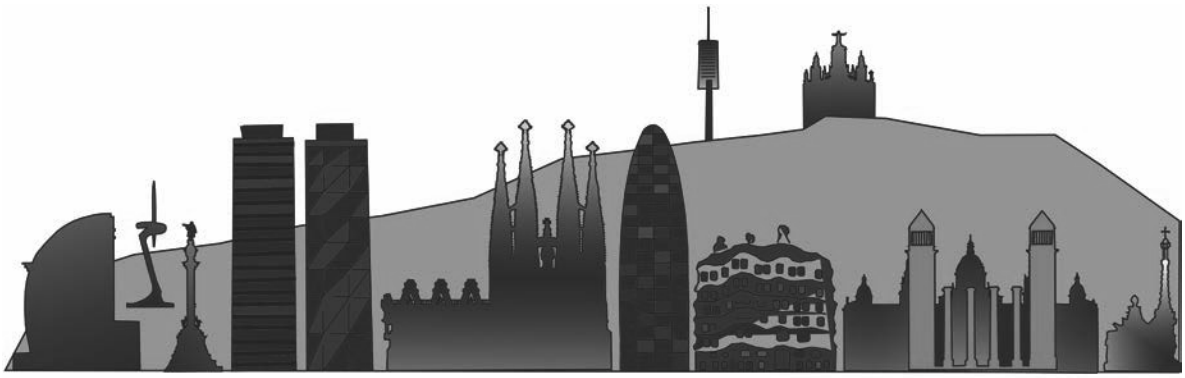
Edited by Concepción De Linares and Jordina Belmonte



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Plane tree pollination phenology and airborne pollen records

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Plane trees (*Platanus* species) are one of the more frequent ornamental trees used in urban environments. Airborne pollen records should reflect pollination phenology and pollen source distribution in relation with the wind. This work aims to assess the relationship between the airborne pollen sampled from plane trees with its flowering phenology and tree location around pollen sampler.

Aerobiological sampling was carried out in Badajoz (SW Spain) in 2016 using Hirst volumetric spore trap. Meteorological station close to the spore trap (2 m) was used. Trees were geo-localized in the urban area. Pollination phenology was studied in 10 specimens, five in the surrounding of pollen station and five 3 km apart, with a frequency of 3-4 days on average. The period studied was March-June. For phenology BBCH methodology was used, branches around the tree top up to 2 m height were tested if pollen was shedding.

Only 5 plane trees were located in a circular area of 1 km around spore trap, all of them south forwards within 150 m. Plane trees from the rest of the urban area were located between W and SE. Pollen grains were recorded along 55 days (15/3-8/5), with an average pollen concentration of 16 pollen grains m^{-3} (pollen index of 894). Pollen peak was reached 30/3 with 142 pollen grains m^{-3}), only four days overcome 50 pollen grains m^{-3}). Rain was present in 22 days with a total of 51.2 mm. Winds from the SW were predominant during the days with higher pollen concentrations. Phenology observation showed a peak of pollination 9 days after pollen peak from the 5 trees studied in the close area of the pollen trap and a peak of 12 days after from the trees studied 3 km apart. Winds from the NW were predominant when phenological pollination peaks were observed. Only a 5.5% of pollen recorded was outside of the phenological period observed, along over 3 days before and 16 days after.

Peaks of phenological observations from plane pollination at the two areas studied were of 3 days. That result showed a high homogeneity in the pollination behaviour of plane trees, mainly as a consequence of their homogeneous genetic background. Results showed a great correspondence between phenological period and airborne pollen record period. Nevertheless, peaks of pollen were reached in advance with respect to phenological peaks. We suggest two causes to explain this difference. Close pollen sources and opposite wind direction decreased pollen records and phenological observation performed at the bottom branches of the trees masked that top branches were shedding pollen in advance.