

## Airborne pollen records and phenology of *Fraxinus angustifolia*

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**Introduction:** Narrow leaf ash (*Fraxinus angustifolia*) is a frequent monoecious tree growing on the banks of rivers in the West Mediterranean region. Pollination takes place in winter when rains are common and to understanding the airborne pollen pattern flower phenology is a great help. This work aims to relate phenology, source tree distribution, meteorology and airborne pollen records in that species.

**Material and Methods:** Aerobiological sampling was carried out in Badajoz (SW Spain) in the winter of 2015-2016 using Hirst type volumetric sampler. Meteorological station is close to the spore trap (2 m). Trees were geo-localized in an area of 300 m around the pollen station. 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 1/11-28/2 (120 days). For phenology BBCH methodology was used.

**Results:** A total of 195 trees were counted in an area of 300 m radius, all of them concentrated in W and NW, close to the Gévora river. Pollen index for the period studied was 1026. Daily peak maximum pollen concentration reached 92 pollen grains/m<sup>3</sup> (16/12). Phenology of pollination ranged 8/12-22/1, with a maximum 8/1. Pollen records outside this period represent 8.3%. Nevertheless, maximum pollen concentration was reached twelve days before in relation to maximum pollination phenophase. Main Pollen Season (MPS 5-95%) lasted 47 days (10/12-25/1), 25 of them were rainy days. Hourly analysis for the ten days including pollen peak showed that maximum concentration was reached just after noon and with winds from W (45-135 grades) that they were the most frequent at that moment, pollen recorded when wind blew for that direction represented 70% of the total.

**Discussion and conclusion:** Non homogeneous distribution of pollen sources for *Fraxinus angustifolia* provided a good tool to demonstrate that wind direction plays a relevant role when aerobiological data should be interpreted according to sources distribution. Nevertheless, pollen records before pollination represented 1.1% and after pollination 7.2%, they are commonly interpreted as pollen coming from long distance. As the number of rainy days in the MPS studied was 53% this may distort peaks of pollen.

**Keywords:** pollination, narrow leaf ash, aerobiology.