

Seasonal and intradaily variations of *Parietaria* pollen in the atmosphere of Málaga

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Parietaria pollen is one of the main causes of hay fever and asthma in the population (Ciprandi et al. 2018), presenting a high allergenicity. It is present in the atmosphere throughout the year, affecting the allergic population for a long period of time. That is why, in order to inform the sensitive population and tourists who visit the area, it is important to determine its behavior pattern in different parts of the city of Malaga.

The objective of this study was to analyze and compare the behavior pattern of the *Parietaria* pollen type in two different points within the city of Malaga and to analyze the existing correlation between pollen concentrations and the main meteorological parameters.

Aerobiological data were obtained using two Hirst-type volumetric pollen traps, one of them installed in the University of Malaga (periphery) and the other in the city center. The study was carried out between 2017 and 2019. The samples were mounted and counted following the recommendations of the Spanish Aerobiology Network (REA). To calculate the annual pollen integral, the sum of the mean daily concentrations (pollen grains/m³ of air) throughout the year was used. To calculate the intradaily variations, the values were accumulated every two hours, expressed as percentages of the daily total. In order to study the relationships between meteorological parameters and pollen concentrations, Spearman correlation tests have been carried out.

Notable differences have been detected between both sampling stations despite being only 5 km apart. The values of the annual pollen integral were always much higher in the center, which may be due to a difference in land use and the greater number of buildings and abandoned lots, where herbaceous and nitrophilous plants, such as *Parietaria*, proliferate. Daily mean concentrations showed the presence of this pollen type in the atmosphere throughout the year, although with very low levels during summer and early autumn. Regarding the intradaily pattern, a more pronounced peak was observed in the city center, while in the periphery, the distribution is more homogeneous throughout the day (figure 1). Regarding the meteorological parameters, it can be observed how they play an important role in determining the daily concentrations in the atmosphere of the city of Malaga.

In the light of these results, we can conclude that it is necessary to install several sampling points within

the same city, due to its heterogeneity and different land uses, in order to inform the population with a greater precision and, in this way, prevent respiratory allergies.

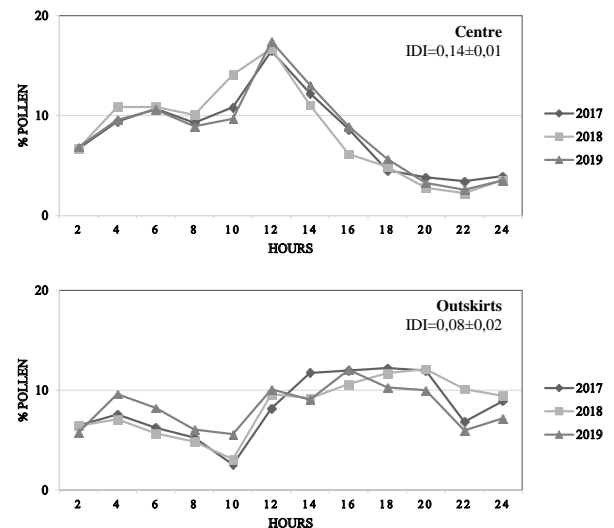


Figure 1. Variations in the intradaily distribution of the *Parietaria* pollen type in the central and periphery stations during the study period (2017-2019).

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Ciprandi, G., Puccinelli, P., Incorvaia, C. & Masieri, S. (2018). *Parietaria* allergy: An intriguing challenge for the allergist. *Medicina* 54, 106.