

Intradaily variations in three different areas in the atmosphere of Malaga city (Southern Spain)

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Airborne pollen is one of the main causative agents of allergic diseases in cities all over the world. Pollen concentrations vary throughout the day, but they may be not equal at different points all over the city, due to such concentrations are influenced by the presence of nearby pollen emission sources, wind direction and structure of the city. The knowledge of the influence of these parameters is interest for allergic people, especially in cities with a touristic interest such as Malaga. The objective of this study is to analyse and compare the intradaily behaviour of main pollen concentration in three different points of the city of Malaga in order to search for differences and compare the influence of the pollen emission sources in the nearby areas. Aerobiological data were obtained using three Hirst-type volumetric pollen trap. One of them was installed in the NW of the city, the second in the city centre, and the third one in the East coast. The study was carried out between 2019 and 2023. The samples were mounted and counted following the recommendations of the Spanish Aerobiology Network. The countings have been done hourly, considering only days without precipitations with daily mean concentration values equal or greater than that of the main pollen season for each point and year. After that the results of two-hour intervals were expressed as percentages over the daily total and the intradiurnal pattern obtained were studied. Some differences between sampling points were observed in the intradaily patterns of the pollen types studied, due to the location of the nearby pollen emission sources, especially regarding the hour of the maximum peaks. This reflects the need to carry out aerobiological samplings in several points of a city in order to obtain a more precise and useful information to the allergic population.