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O.029 | Intradiurnal variations of atmospheric pollen in natural and urban-rural environments in southern Spain

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BACKGROUND AND OBJECTIVES
Local pollen sources and meteorological conditions influence the intradiurnal patterns of airborne pollen, determining the hours of the day when the highest pollen concentrations are registered. Sierra de las Nieves is a Biosphere Reserve and a Natural Park with prevalence of natural vegetation. Ronda is located near the domains of this protected area, being one of the cities situated inland Malaga province (southern Spain). The main aim of this study was to characterise the intradiurnal patterns of the most abundant pollen types in these two localities searching for differences between them.

MATERIAL AND METHODS
The study was conducted during 2017-2019 in Ronda and 2018-2019 in Sierra de las Nieves (12 km distant). Pollen was collected by means of two Hirst-type volumetric pollen traps. Samples were mounted and counted following the recommendations of the Spanish Aerobiology Network (REA). The five most abundant pollen types in both stations were studied. Only the rain-free days exceeding the daily average pollen concentration of the main pollen season (90%) were studied. Hourly pollen data were expressed as 2-hours percentages of the daily pollen counts. The data obtained from the two stations were compared by means of Wilcoxon tests. Additionally, a cluster analysis was performed for Castanea pollen. The Intradiurnal Distribution Index (IDI) was also calculated.

RESULTS
No significant differences were observed in the intradiurnal patterns between the sampling years within the same station. However, different patterns were observed between stations, highlighting the differences found in Cupressaceae, Castanea and Quercus. In Sierra de las Nieves, two different patterns were observed for Castanea.

CONCLUSIONS
The influence of local pollen sources could explain the differences registered in the IDI values between the two stations. Moreover, the highest differences between stations were detected in the case of pollen types belonging to the most abundant taxa in the surrounding areas of the stations. On the other hand, according to the patterns observed in Castanea, a common source may explain the general behaviour, while a secondary source may explain the differences observed in the Natural Park.

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