

BIOAEROSOLS: CONECTIONS WITH METEOROLOGICAL PARAMETERS AND ATMOSPHERIC POLLUTANTS

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Theme: Environmental Aerobiology

Keywords: air pollutants, meteorology, pollen

Air pollutant and bioaerosols present in the atmosphere can interact with each other increasing their adverse impacts on human health. The meteorological parameters can play an important role in determining their concentrations and, hence, in their relationship. In this study, the long-term trends and the correlation between pollutant concentrations and meteorological parameters with *Fraxinus*, *Populus* and Poaceae pollen concentrations in León were evaluated.

Atmospheric pollen was sampled using a Hirst volumetric trap, placed on the terrace of the Faculty of Veterinary of the University of León (42° 36' 50" N, 5° 33' 38" W) from 1994 to 2016. The data available in the Air Quality Network of Junta of Castilla y León, from 1997 to 2016, for the station León1 (05° 35'14"W 42° 36'14"N), for CO, NO, NO₂, O₃, PM₁₀ and SO₂, were used. The meteorological parameters were provided by the State Meteorology Agency (AEMET). Trends were calculated using the nonparametric Mann-Kendall test. The correlation among pollen concentrations and pollutant concentrations and meteorological parameters was determined using the nonparametric Spearman's correlation method.

There is a significant increasing trend in the *Fraxinus* pollen concentrations. A significant correlation between seasonal pollen integral (SPIn), main pollen season (MPS) and air pollutant concentrations was observed mainly in the months before the pollination period. The flowering and pollination period depends largely on the minimum temperature, relative humidity and precipitation before this period. The *Populus* and Poaceae MPS have a negative significant correlation with the minimum temperature before the flowering. Poaceae concentrations show a significant positive correlation with the rainfall before and during the flowering period. *Populus* and Poaceae concentrations do not show a clear correlation with the pollutant concentrations. The principal source of the three studied taxa is located close to the sampling point and in the NE sector, where the Torío river is located.