



Symposium conjoint APLF-APLE



XXII<sup>ème</sup> symposium de L'Association des Palynologues de Langue Française  
XVIII<sup>ème</sup> symposium de l'Asociación de Palinólogos de Lengua Española

# PALYNOLOGIE ET DIVERSITES

marqueurs, milieux, méthodes, modèles, applications

**MEUDON Bellevue-PARIS**  
**DU 19 AU 22 SEPTEMBRE 2011**

**Campus de Bellevue** (salle des conférences et salle des directeurs)  
1 place Aristide Briand - 92195 Meudon

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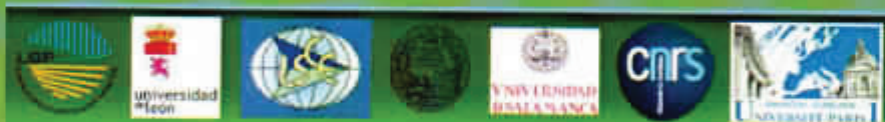
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**Responsables :** Agnès GAUTHIER, Nathalie COMBOURIEU NEBOUT, Vincent LEBRETON, Délia FERNANDEZ GONZALEZ, Rosario RIVAS CARBALLO

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Jose Luis Uberta Jimenez, Universidad de Córdoba, Depto. de Botánica, Ecología y Fisiología Vegetal



## Comparison of airborne pollen types in Badajoz (SW Spain) and Évora (SE Portugal)

Rui Brandao<sup>1</sup>, Elsa Caeiro<sup>1</sup>, Santiago Fernández Rodríguez<sup>2</sup>, Inmaculada Silva Palacios<sup>2</sup>, Rafael Tormo Molina<sup>2</sup>

<sup>1</sup>Universidade de Évora, Portugal

<sup>2</sup>Univerisad de Extremadura

✉ ruibrand@uevora.pt

**Introduction:** This work was designed to evaluate aerobiological sampling differences in distance in two different cities of the Iberian Peninsula located at similar latitude, Badajoz (SW Spain) and Évora (SE Portugal).

**Methods:** Three Burkard samplers have been used, two in the city of Badajoz (38° 53' N, 6° 58' W), one located in the Faculty of Science of University Extremadura at 16 m and another 2.9 km apart in the Agrarian Engineering School) at 6 m. One third sampler was located 84 km apart in Évora (38°34'N, 7° 54' W), in its historical centre, on a meteorological platform of the National Institute of Meteorology at 17 m. All the samplers were located in open terraces and have the intake hole at 1.5 m from the floor. Aerobiological sampling was performed using a Hirst-type 7-day spore trap, in accordance with the procedure developed by the European Aerobiology Network. Pollen concentration season were studied in spring 2009 and 2010. Wilcoxon ranks test were applied to compare mean daily pollen counts for the study sites, moreover Spearman correlation test was used to compare pollen concentrations and meteorological parameters (precipitation, relative humidity, solar radiation, speed and direction wind).

**Results:** Total pollen concentration average in 2009 for Badajoz was 282 and 260 pollen/m<sup>3</sup> in both sites sampled, and 507 pollen/m<sup>3</sup> in Évora. In 2010 for Badajoz was 411 and 310 pollen/m<sup>3</sup> in both sites sampled, and 681 pollen/m<sup>3</sup> in Évora. Main pollen types were *Quercus*, *Poaceae* and *Olea*. These pollen types represent 71% in Badajoz and 74 % in Évora. There were found positive significant correlations between both sampling sites in Badajoz for each type of pollen respectively and between both cities. Wilcoxon ranks test showed interannual differences between both years. Spearman correlation coefficient using daily data was statistically significant in 2009 and 2010 in Badajoz between both sampling sites and between both cities respectively. There were statistically significant differences between two sampling sites of Badajoz and Évora while there were no differences found between both stations in Badajoz. Significant correlations were found between daily pollen concentration data and meteorological parameters in the three sampled sites with a negative correlation with precipitation and relative humidity and a positive correlation with speed wind and solar radiation.

**Conclusions:** There are no differences in patterns of pollen distribution along the period analysed between the tree stations studied; nevertheless the amount of pollen captured showed differences between Badajoz and Évora. Similar surrounding vegetation and climatology of both cities could explain the same order of the main pollen types (*Quercus*, *Poaceae* and *Olea*) and that relationships between daily pollen of each sampling sites have showed significant positive correlations. Notwithstanding interannual significant differences could be explained by differences registered in weather between both years. On the other hand a more rural landscape around Évora could explain a higher pollen concentration than in Badajoz, which is enough to justify different samplings sites.