

The European project HIALINE: *Comparison between Poaceae Airborne Pollen Counts and Phl p5 Aeroallergen Quantification in SW Europe*

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Introduction: Nowadays, pollinosis is affecting in a large percentage of population in the developed countries. The existence of allergenic activity in the atmosphere is not only associated to pollen grains and fungal spores, but also to submicronic and paucimicronic biological particles. The origin of these allergens can be due to the rupture of pollen transported in the atmosphere or to the presence of allergens from other parts of the plant making amorphous material with allergenic load. *Poaceae* pollen is recognized as one of the main causes of allergic disease in all Europe. In this study we have tried to compare *Poaceae* pollen counts in the air and *Phl p 5*, one of the major allergens of this family, through the use of a high-volume cascade impactor (Chemvol). This study was done in the frame of the European project HIALINE and it compares the results obtained in 2009 by 3 different partners participating in this project: in Córdoba (Spain), Évora (Portugal) and Lyon (France).

Methodology: Pollen grains have been taken out using a 7-day volumetric Hirst type spore trap. Chemvol high-volume cascade impactor equipped with stages PM₁₀>10µm, 10 µm>PM_{2.5}>2.5µm were used for detecting aeroallergens. In each stage polyurethane filters were applied. *Phl p5* allergen was determined using allergen specific ELISA's. Antibodies for analysis are delivered by Allergopharma Joachim Ganzer KG, the industrial partner in this project. Both samplers were placed side-by-side.

Results: Most of the allergen was collected in the PM₁₀>10µm fraction. Similar profiles between airborne pollen and the total allergenic load was observed during the pollen season. A good correlation was obtained and a value of 2.5 pg/pollen grain of *Poaceae* was estimated.

Discussion: These results suggest that the allergenic load in outdoor air might be mainly due to pollen bursts. It supports the hypothesis that monitoring the allergens itself in ambient air might be an improvement in allergen exposure assessment.

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