



MADRID 38 YEARS OF POLLEN OBSERVATION: PLATANUS COUNTS IN A CHANGING WEATHER

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INTRODUCTION

Climate change is actually related to global warming in relation to the effect of the increase levels of greenhouse gasses concentrations (CO₂).

This change is related with extreme weather phenomena producing more altered pollination periods.

Platanus pollen is one of the principal causes of pollinosis in Madrid. The principal objective is to check and find out if the weather and the climate change affect the aerobiological behavior of the *Platanus* pollination and its pollen counts in Madrid.

MATERIAL AND METHODS

Platanus sp pollen counts were performed since 1979 to 2016 using a Burkard 7 days spore trap located in our allergy center in Madrid.

The beginning of the algid period of pollination was considered the first of three consecutive days with more than 10 grains/m³ and the end, the last day of three consecutive days with more than 10 grains/m³.

Madrid, Barajas meteorological station data, was used. Skin prick tests (PT) to *Platanus hispanica* pollen was also studied in comparison with a total of PT in 1979 (n=100 pollinosis patients), 1994 (n=316 pollinosis patients) and annually from 1999-2016 (n = 40.998), annual media of 2.411 patients with pollinosis.

Data from the Barajas Meteorological Station were utilized.

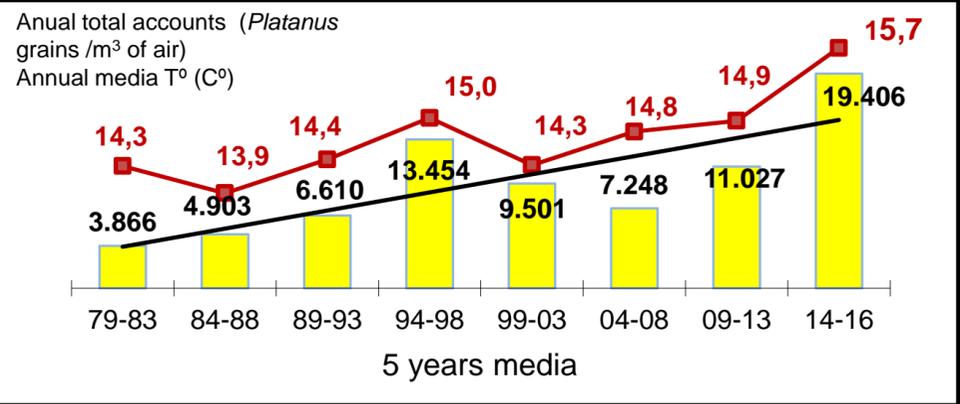
RESULTS

The quinquennial media concentrations since 1979 to 2016 were 3.866; 4.903; 6.610; 13.454; 9.501; 7.248; 11.027 and 19.406 grains /m³.

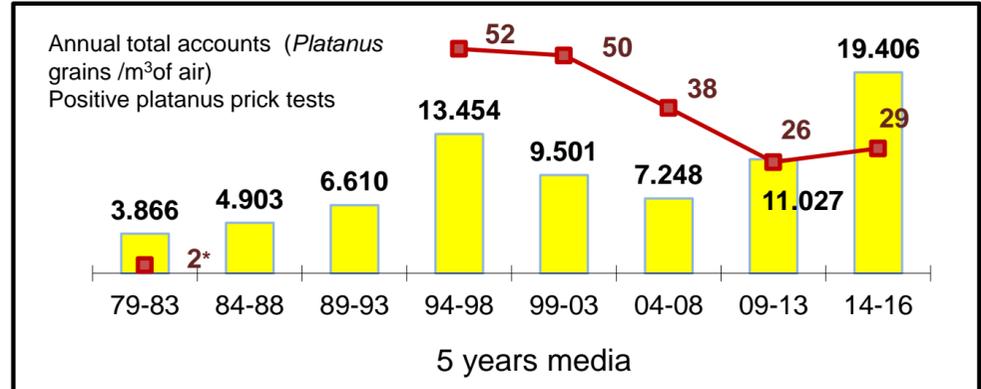
The quinquennial media temperatures were 14,2; 13,8; 14,3; 14,9; 14,2; 14,7; 14,9 and 15,8 °C. Increase of 1.4 °C ($r_s=0,9$ $p < 0,05$).

The beginning and the end of the actual season advanced 5 days respectively in regard to the period from 1979 to 1983.

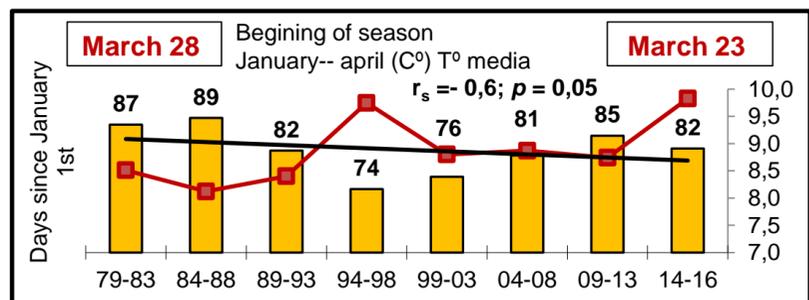
The annual prevalence of positive PT to *Platanus* in 1979 was 2% an 52% in 1994. The quinquennial media from 1999 to 2016 was 50, 38, 26 and 29%.



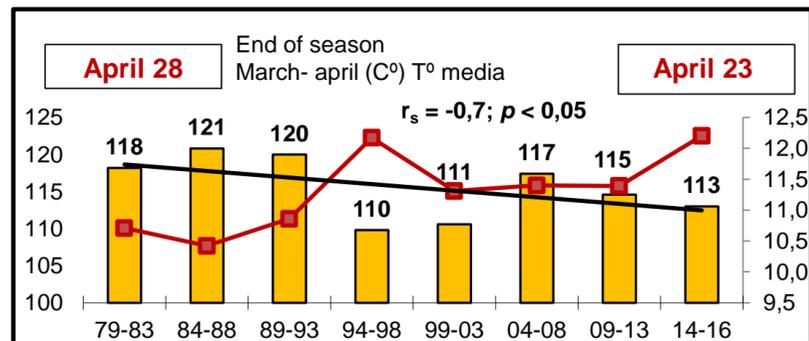
Platanus in Madrid (38 years) :Temperature excellent correlation



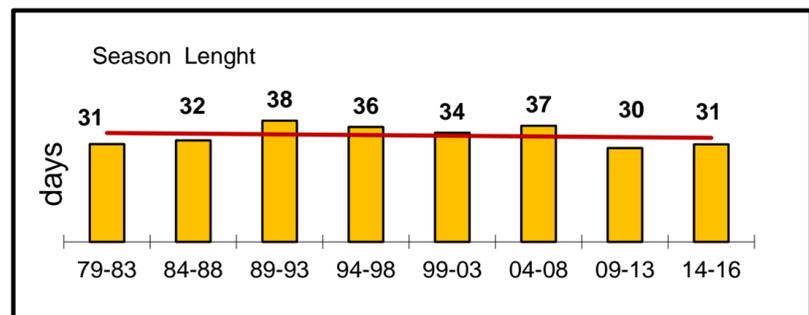
Platanus pollens account and prick test prevalence



Season beginning :
 Advance : 5 days



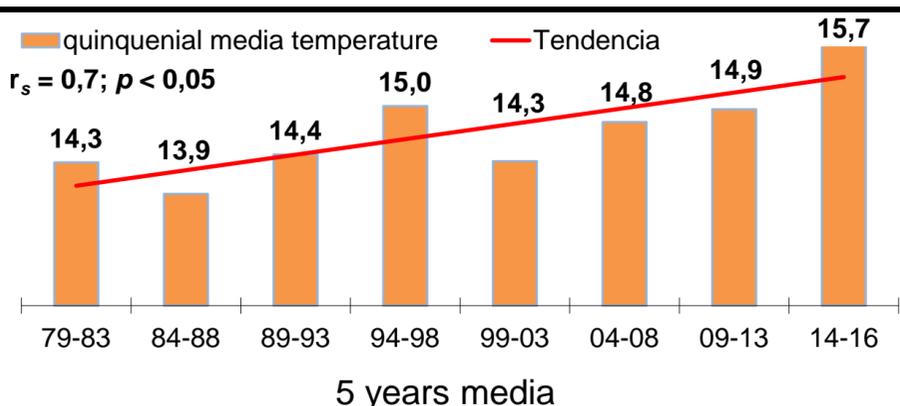
Season end:
 Advance 5 days



Season duration:
 No changes

CONCLUSIONS

- Platanus* pollen counts had a dramatic increase that meaningfully correlates with the dramatic increase of the temperature.
- A discreet advance at the beginning and the end of the season was seen. These changes did not influence in a longer duration of the season.
- We observed a significant increase in *Platanus* pollen sensitization prevalence whitening Madrid pollinosis patients.



Madrid temperature in 38 years: increase of 1,4 °C (0,36 per decade)

