



OLEA POLLEN COUNT IN A CHANGING CLIMATE: 38 YEARS OF OBSERVATION

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INTRODUCTION

Since pollen from the olive tree is one of the principal causes of pollinosis in Madrid, we wanted to find out whether climate changes are affecting its aerobiological and clinical behaviour.

MATERIAL AND METHODS

Olea pollen counts were carried out between 1979 and 2016 using Hirst volumetric collectors, placed on the roof-top of our clinic.

A prevalence study using Skin Prick Tests (SPT) for *Olea europaea* pollen was carried out on our pollinosis patients at the clinic: 1979 (n=100); 1994 (n=316), and yearly between 1999 to 2016 (n=40,998), with an annual average of 2,411 patients.

The beginning of the season was considered to be the first day of three consecutive days with >10 grains/m³ air. The end of the season was considered to be the last day of three consecutive days with <10 grains /m³ of air.

Data from the Madrid Barajas Weather Station was used.

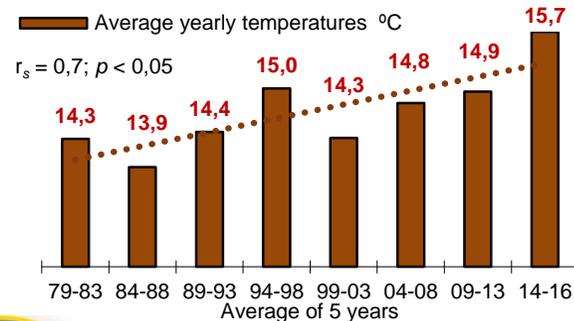
RESULTS

The average five-yearly temperatures were 14.2, 13.8, 14.3, 14.9, 14.2, 14.7, 14.9, and 15.7°C, which considers a global increase of 1.4°C.

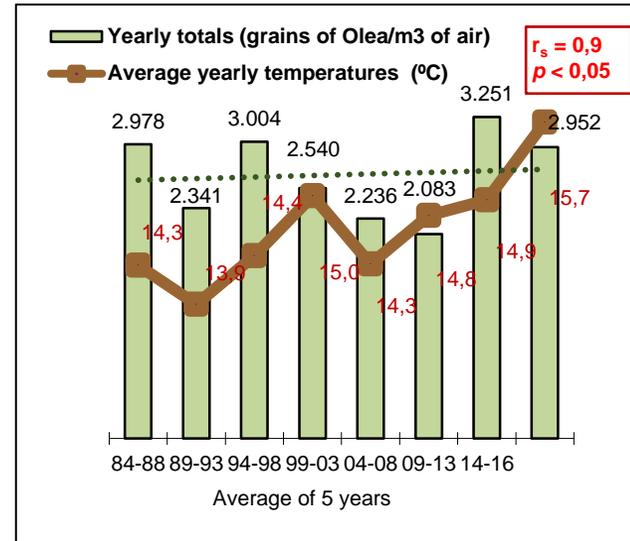
The average five-yearly pollen concentrations were 2978, 2341, 3004, 2540, 2236, 2083, 3251 and 2952 grains/m³. Excellent correlation with temperature ($r = 0.9, p < 0.05$).

The annual prevalence of SPT's positive to *Olea* in 1979 was 50%, and in 1994, 61%. The five-yearly averages between 1999 and 2016 were 69, 63, 59 and 60%.

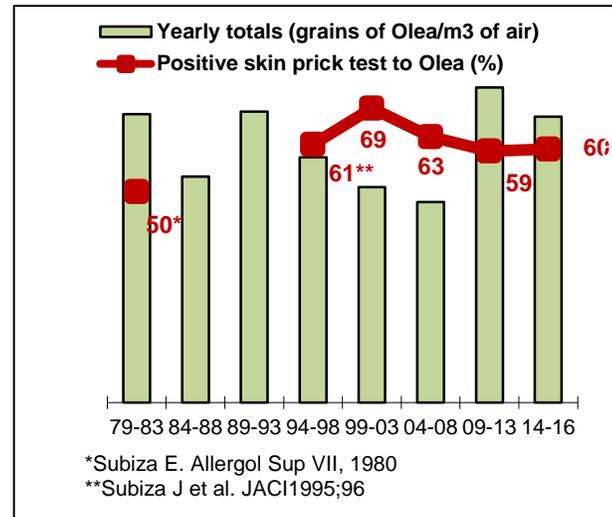
The beginning of the season began 9 days earlier and finished 7 days earlier with respect to the period between 1979 and 1983. The length of the season increased by 2 days.



Temperature in Madrid (38 years): increase of 1.4 °C (0.36 per decade)



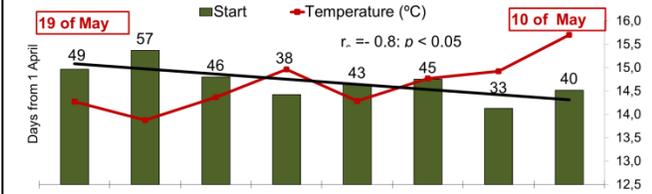
Olea in Madrid (38 years). No increase / Excellent correlation with temperature



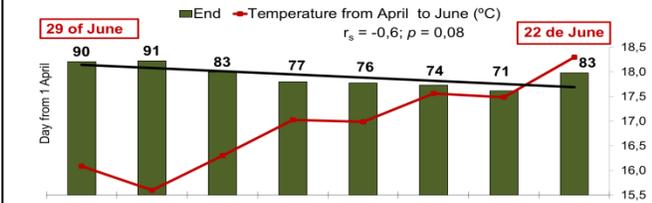
*Subiza E. Allergol Sup VII, 1980

**Subiza J et al. JACI 1995;96

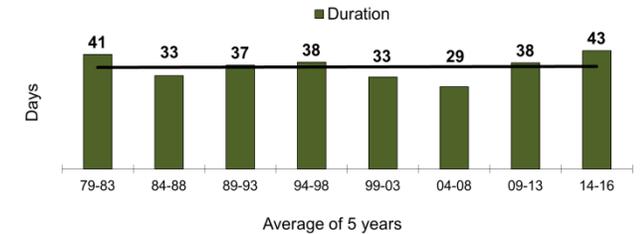
Olea: pollen counts and prevalence of positive skin prick tests (increase from 50% to 60% among pollinosis patients)



Season begins 9 days earlier



Season ends 7 days earlier



Season lasts 2 days longer

CONCLUSIONS

1. Temperature increase of 1.4 °C in Madrid, over 38 years.
2. No change in *Olea* pollen count tendencies. Five-yearly variations closely correlated to temperature variations.
3. The season began 9 days earlier and ended 7 days earlier.
4. Discreet increase in the prevalence of sensitization among pollinosis patients in Madrid, shifting from 50% to 60%.