



# Occupational asthma caused by *Plukenetia volubilis*



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Occupational asthma is a common disease and represents 15% of the asthma that starts in adulthood. We present the case of a female worker within the cosmetics industry who developed asthma after exposure to *Plukenetia volubilis*.

## METHODS

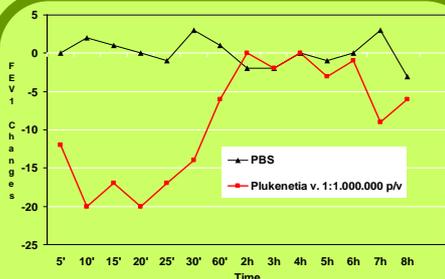
A female of 42 years old working in a cosmetics laboratory for the last 22 years, smoker for the last 20 years, refers rhinoconjunctivitis and asthma for the last 4 years at her work place that improves on holidays. She suspects these symptoms have begun since she started to handle crushed *Plukenetia volubilis*. To disclose the relation between the exposure to this seed and to discard other possible triggers of her asthma (latex or other exposures), we performed functional lung test, skin prick test (SPT) and immunological study.



PLUKENETIA VOLUBILIS

## RESULTS

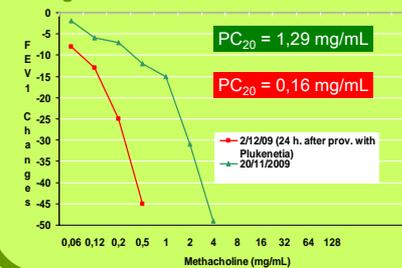
SPT to a standard panel of inhalants and nuts was positive to cat and dog dander but negative to the rest (pollen, latex, dust mites, fungus and nuts). She has no contact with cats neither dogs. At her first visit, she showed a positive bronchodilator test with an increase in FEV1 after inhalation of Salbutamol of +14%. The patient brought crushed *Plukenetia* and we made an extract that resulted extremely powerful (concentration of 2260µg/ml). When tested in prick test a weal of 4mm was obtained with a dilution of 1:100.000.000 w/v.



We performed a bronchial challenge (BC) with this extract at that dilution which resulted negative but when it was carried out with at 1:1.000.000 it induced a decrease of 20% in FEV1 after 5 minutes of inhalation.

1.- SPECIFIC BC

To asses specific inflammation a BC with methacholine was done 1 week previous to the specific BC and 1 day after it, and an increase in bronchial hyperactivity was shown with the decrease of PC20 from 1.29mg/ml to 0.16mg/ml.

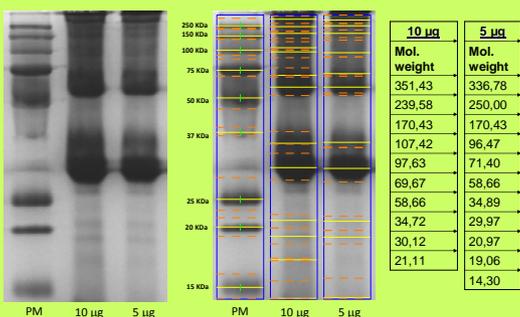


2.- METHACHOLINE



An increase in FENO was also recorded 24 hours after the specific BC, from 8ppb 24 hours previous to 22ppb after.

3.- FENO



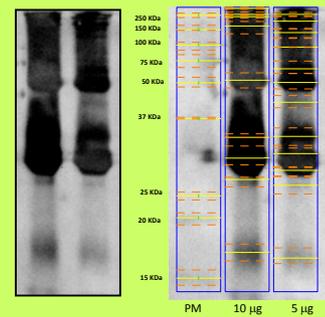
4.- SDS-PAGE

• IgE detected in ELISA showed a 2.5 times higher optic density for the patient's sera than in 2 atopic controls for *Plukenetia*.

• In the SDS-PAGE we could observe multiple proteins, but of major importance two of them (molecular weight of 29 kDa and 58 kDa).

• Immunoblot performed with the patient's sera show similar data.

	10 µg	5 µg
Mol. weight		
322,75		202,85
258,86		139,02
238,66		96,47
170,43		64,61
52,44		50,30
33,63		42,43
30,26		33,80
27,15		30,97
16,95		28,43
		26,35
		16,51



5.- IMMUNOBLOT

## CONCLUSION

We present a case of occupational asthma caused by *Plukenetia volubilis*, a very powerful allergen that elicited a specific bronchial response with an extract dilution as low as 1:1.000.000 p/v. We couldn't find any published case about occupational asthma caused by *Plukenetia volubilis*, although we certainly know there is a similar case printed in poster format (poster n. 1093. EAACI Varsovia Congress 2009).