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Original Article

Major allergen from *Amaranthus palmeri* pollen is a profilin: Isolation, partial characterisation and IgE recognition

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Abstract

Background

Pollens represent a rich source of proteins that are also potential elicitors of IgE-mediated pollen allergy. Sensitisation to panallergens could play an important role in diagnosis and specific immunotherapy, because these molecules are present in different plant pollens and plant foods and have marked structural similarity in different species. Profilins are one of the most common panallergens to be studied because they are responsible for a large number of sensitisations and are clearly related to cross-reactivity and co-sensitisation. This study aimed to isolate and characterise a new allergen of *Amaranthus palmeri* pollen and to determine its allergenicity.

Methods

A. palmeri pollen profilin was purified using poly-L-proline-Sepharose affinity chromatography followed by anion exchanger chromatography. Identification of purified protein was carried out by mass spectrometry. Specific IgE was estimated in sera of patients with positive skin prick test to *A. palmeri* pollen extract, by enzyme-linked immunosorbent assay (ELISA).

Principal findings

Purified protein appeared as a single band at 14 kDa in SDS-PAGE gel. Mass spectrometric analysis of the gel band identified two highly conserved peptides corresponding to allergenic profilins from pollen of other plants. Sera from about 60% of allergic patients have IgE that recognises the purified *A. palmeri* protein.

Conclusion

A 14 kDa protein of *A. palmeri* pollen was purified and identified as allergenic profilin, which was recognised by sera from pollen allergic patients.

Keywords

Allergen, *Amaranthus palmeri*, Pollen, Profilin



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