

## Oriental plane pollen allergy: Identification of allergens and cross-reactivity between relevant species

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[View references \(7\)](#)

### Abstract

Pollen from different tree and grass species represent the greatest inducers of type I allergy worldwide. Oriental plane trees, as *Platanus orientalis*, are an important source of airborne allergens in cities of the southwest Asia and southeast Europe. This study was aimed to identify relevant allergens of *P. orientalis* pollen and to ascertain whether *P. orientalis* allergens have cross-reactivity with related plane trees, such as *Platanus acerifolia* and *Platanus occidentalis* pollen components. Nineteen patients with a clinical history of reaction to *P. orientalis* pollen and a positive skin-prick test (SPT) to *P. orientalis* pollen extract were included in this study. Identification of IgE-binding proteins in *Platanus* pollen extracts was elucidated by immunoblotting using sera from *P. orientalis* pollen-sensitive patients. Cross-reactivity studies among *P. orientalis* allergens and relevant species was evaluated by immunoblot-inhibition and ELISA inhibition assays. All the patients were polysensitive and exhibited positive SPT to grass and tree pollen allergens. The IgE-binding pattern of *P. orientalis* pollen extract was well defined. The inhibition experiments showed that the capacity of *P. occidentalis* was greater than *P. acerifolia* pollen extract in preventing the reactivity of immobilized *P. orientalis* pollen extract with the IgE antibodies of patients. The 14-kDa molecule was the most frequent allergen among nine IgE-binding proteins of *P. orientalis* pollen. The IgE-reactive components of *P. orientalis* pollen showed a higher level of cross-reactivity with *P. occidentalis* pollen in comparison with *P. acerifolia* pollen. Copyright © 2008, OceanSide Publications, Inc.

### Author keywords

Allergen characterization; Cross-reactivity; ELISA inhibition; Immunoblot inhibition; *Platanus acerifolia*; *Platanus occidentalis*; *Platanus orientalis*; Pollen allergy; SDS-PAGE immunoblotting

### Indexed Keywords

**EMTREE drug terms:** immunoglobulin E; pollen antigen; pollen extract; allergen; plant antigen

**EMTREE medical terms:** adult; article; child; clinical article; cross reaction; enzyme linked immunosorbent assay; female; human; immunoblotting; male; nonhuman; *platanus acerifolia*; *Platanus occidentalis*; *platanus orientalis*; pollen allergy; polyacrylamide gel electrophoresis; school child; tree; adolescent; angiosperm; blood; hay fever; immunology; pollen; skin test

**MeSH:** Adolescent; Adult; Allergens; Angiosperms; Antigens, Plant; Child; Cross Reactions; Female; Humans; Immunoglobulin E; Male; Pollen; Rhinitis, Allergic, Seasonal; Skin Tests; Young Adult

*Medline is the source for the MeSH terms of this document.*

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