

## عنوان مقاله:

Molecular Cloning, Characterization, and Expression of Cuc m ۲, a Major Allergen in Cucumis melo

## محل انتشار:

مجله گزارش های بیوشیمی و زیست شناسی مولکولی، دوره 1، شماره 2 (سال: 1392)

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## خلاصه مقاله:

Background: Several studies reported the clinical features of IgE-mediated hypersensitivity after ingestion of melon. Melon allergy is a common IgE-mediated fruit allergy in Iran. This prompted us to investigate immunochemical and molecular properties of the major allergen in melon fruit, to compare the IgE-binding capacity of the natural protein with the recombinant allergen, and to determine cross-reactivity of the major allergen with closely-related allergens from other plants displaying clinical cross-reactivity with melon. Methods: Identification and molecular characterization of the major melon allergen were performed using IgE immunoblotting, allergen-specific ELISA, affinity-based purifications, cross-inhibition assays, cloning, and expression of the allergen in Escherichia coli. Results: Melon profilin was identified and isolated as a major IgE-binding component and designated as Cuc m ۲. Sequencing corresponding cDNA revealed an open reading frame of ۳۶۳ bp coding for ۱۳۱ amino acid residues and two fragments of ۱۷۱ bp and ۳۸۳ bps for the 5' and 3' UTRs, respectively. Significant cross-reactivity was found between melon profilin and Cynodon dactylon, tomato, peach, and grape profilins in cross-inhibition assays. Although the highest degree of amino acid identity was revealed with watermelon profilin, there was no significant cross-reactivity between melon and watermelon profilins. Conclusion: Melon profilin is the major IgE-binding component in melon extract, and the recombinant and natural forms exhibited similar IgE-binding capacities. A part of the fruit-fruit and pollen-fruit cross-reactions could be explained by the presence of this conserved protein; however, sequence homology provides insufficient information to predict IgE cross-reactivity of profilins.

## کلمات کلیدی:

Cross-reactivity, Fruit allergy, Melon, Profilin, Recombinant allergen

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