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## Mass spectrometry based identification of novel allergens from sunflower pollen: A common sensitizer to rhinitis patients

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Allergy is a burning problem in today's world. Allergy is caused by several environmental antigens or allergens present in pollen grains, fungal spores, dust mites, etc. Atmospheric pollen grains are the major cause of inhalative allergies, affecting 15-30% of world population. Allergens are mainly immunogenic proteins or glycoproteins regarded as a foreign substance by the human immune system. Therefore, it is necessary to identify and characterize allergenic proteins from severe allergy causing pollen grains for proper diagnosis and treatment of allergy sufferers. *Helianthus annuus* pollen grains are present in large proportion in the aerosol of Kolkata, a mega-city of India. Sunflower is a common flowering plant grown all over the world for its immense economic and ornamental value. Allergic rhinitis caused by sunflower pollen grains is reported from different countries including India. Present study aims to identify and characterizes the sunflower pollen allergens using immuno-proteomic tools and emphasizes on purification of a novel pectate lyase allergen. Allergenic potential of sunflower pollen grains was investigated by several clinical and immunoproteomic studies followed by mass spectrometry based identification of allergens. Homology driven search of MS/MS data of these IgE-reactive proteins identified seven previously unreported allergens from sunflower pollen. Hierarchical clustering of 2D IgE-immunoblot with patient sera revealed pectate lyase as a major sunflower pollen allergen, which is a glycoprotein. In the present study, pectate lyase has been purified from sunflower pollen for the first time. Purified pectate lyase was further characterized by enzyme assay, immunoblot and mass spectrometry. Other studies such as cross reactivity, epitope mapping, glycan profiling of this allergen will open new avenues to improve the current tools of component resolved diagnosis and immunotherapy of pollen allergy.

### Biography

Nandini Ghosh has completed her MSc degree from University of Calcutta, India. Then she had qualified Indian Council of Medical Research (ICMR), JRF examination and joined at Bose Institute, Kolkata, India, for PhD. Now, she is pursuing her research under the guidance of Prof. Swati Gupta Bhattacharya, Senior Professor, Division of Plant Biology, Bose Institute, Kolkata, India, as an ICMR Senior Research Fellow. She is working on identification and characterization of inhalant allergens through immuno-proteomic approach. She had published 3 papers in peer reviewed journals. She got EAACI best abstract prize on 2014 in Molecular Immunology and pollen section at EAACI Annual Congress at Copenhagen, Denmark.

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