

P013 Proteomic characterisation of surface active allergenic cereal proteins

E. Szanics⁽¹⁾, Gy. Hajos⁽¹⁾, L.A. Salt⁽²⁾, F. Mulholland⁽³⁾,
E.N.C. Mills⁽³⁾

*(1) Central Food Research Institute, H-1022 Budapest, Herman
O.15, Hungary*

(2) Rothamsted Research, Harpenden, Herts, AL5 2JQ, UK

*(3) Institute of Food Research, Norwich Research Park, Colney,
Norwich, NR4 7UA, UK*

The mechanism involved in the development of aberrant IgE-responses central in the development and manifestation of type I hypersensitivity reactions are not currently understood. There are two aspects involved. Firstly, the genetic profile of an individual may predispose them to becoming atopic, and secondly the profile of protein components, their structural and biological properties, may predispose some proteins to becoming more allergenic. This project focuses on the later aspect, investigating how the surface properties of allergenic wheat proteins may allow allergens to interact with lipid structures in foods and hence evade digestion.

Surface-active salt soluble wheat proteins are isolated by hydrophobic interaction chromatography on octyl sepharose, with amphiphilic proteins being extracted using detergents, both of which are established methodologies for extracting surface-active proteins. Their surface properties are characterised using tensiometric methods. The composition of isolated fractions are characterised by 2D-PAGE and the IgE-reactive polypeptides identified by immunoblotting to confirm the identity of the allergenic proteins. Proteomic analysis involves excision of putative IgE-reactive proteins from 2D gels, followed by reductive carboxymethylation and digestion using trypsin in situ in the spot. The fragments are analysed using Maldi and Qtof mass spectrometry.