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CHARACTERISATION OF GLIADIN PEPTIDES BY MALDI-TOF MASS SPECTROMETRY

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Wheat gliadins are a group of peptides that have been implicated in coeliac disease or gluten sensitive enteropathy. The disease is known to be triggered by a toxic reaction by cells in the small intestine to a number of the digestion fragments of the gliadins[1]. *In-vitro* tests[2] have been used to identify some toxic fragments. The amino acid sequence for a number of these small peptides has been determined using conventional methods and , while some common structural features have been found, attempts to understand the mechanism of the toxicity on the basis of a chemical model have not been fruitful.

In this work, matrix assisted laser desorption ionisation together with time of flight mass spectrometry (MALDI-TOF) has been used to produce ions from larger fragments of the gliadins for further characterisation. The post source decay (PSD) technique has been used to provide MS-MS data for the ionised samples in order to probe the structure of the fragments. Results identify a number of parent gliadins which produce a number of digest fragments. Further structural detail can be inferred using PSD data.

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1 Cornell, H.J., Coeliac Disease; A Review of the Causative Agents and Their Possible Mechanism of Action. Amino Acids, **10**,1-19, 1996

2 Weiser, H. Belitz, H-D. and Ashkenazi, A., Coeliac Activity of the Gliadin Peptides CT-1 and