

Understanding milk proteins

– the key to commercial opportunities

Proceedings of a joint meeting of the Royal Society of Chemistry Food Group and the Society of Dairy Technology at Burlington House, Piccadilly on the 31st October 2012 to mark the contribution of the late Professor Tony Andrews to the field of dairy science.



Mrs Caroline Andrews and Dr Kirsty Greenfield, one of her daughters, with the speakers at the meeting. From the left: Prof Kees DeKruif, Dr Ken Burgess (President, SDT, chairing the afternoon session), Dr Alistair Grandison, Mike Saltmarsh (organiser), Dr Richard Frazier, Julian Price, Prof Alan Kelly and Cal Flynn.

Introduction

This meeting has been inspired by the contribution of the late Professor Tony Andrews but, as fitted his character, is intended to look forward rather than just cover the past.

Following his MA and D Phil at Oxford, Tony worked at the Universities of Yale and Oregon before returning to the UK, to the National Institute for Research in Dairying and its successor, the Institute of Food Research, at Shinfield from 1969 till the site closed in 1991, his published work leading to the award of a DSc in 1983. At Shinfield he worked on the biochemistry of milk proteins, including enzymes, and developed the methodology for their separation, quantification and the measurement of their activity. His work on gel electrophoresis provided methods for subsequent generations of dairy scientists and biochemists to follow, while better knowledge of milk enzymes has led to a greater understanding of milk stability problems.

At the same time, Tony collaborated with co-workers in the University of Reading on other aspects of food and biological systems, including Shailam Patel and myself in respect of milk enzymes as alternative heat treatment indicators.

In 1994, Tony was appointed to a professorship at the then University of Wales Institute in Cardiff, taking on a long-distance commute for the next ten years. During this time he developed an interest in the anti-cariogenic activity of milk proteins and peptides, carrying out a collaborative project with Guys Dental Hospital that resulted in several published papers.

Tony was a very active member of the Food Group of the Royal Society of Chemistry, organising conferences and refereeing papers for several scientific periodicals. He also took on a heavy refereeing load for the *International Journal of Dairy Technology* at the time that it was expanding rapidly. Tony will be remembered not just for his contributions to dairy science but for his patience and good humour.

In putting together today's programme, Mike Saltmarsh and I have tried to follow the evolution from basic science to its application, particularly for milk proteins in food systems. The better understanding of milk proteins has led not just to higher quality in dairy-based products but to vastly improved baby feeds and to new classes of products such as the sports supplements based on whey proteins. Arguably the next step is in the use of milk peptides in high value pharmaceutical products.

Andrew Wilbey (Chairman of the Publications Committee, SDT)

The papers are given as separate pdf files in the order of presentation.

1. *Role of electrophoresis in protein analysis*

Dr Richard Frazier

Department of Food and Nutritional Sciences,
The University of Reading



2. *The lactoperoxidase system – a natural antimicrobial system*

Dr Alistair Grandison

Department of Food and Nutritional Sciences,
The University of Reading



3. *Heat-stable proteases in milk: scientific, technological and physiological significance*

Prof Alan Kelly

School of Food and Nutritional Sciences,
University College, Cork



4. *Evolution of commercial whey protein products*

Julian Price

Volac International Ltd.



5. *Caseins micelles in milk revisited – a cow story*

Prof. Kees de Kruif

NIZO & the University of Utrecht



6. *The evolution of milk protein technology*

Cal Flynn

Kerry Foods Ltd

