

70 years of progress

A review of the first issue of Volume 70,
the *International Journal of Dairy Technology*, by Andrew Wilbey

This year marks the 70th anniversary of the Society of Dairy Technology's lead publication. Starting as the *Journal of the Society of Dairy Technology*, primarily reporting on topics arising at meetings, the journal has progressed to publishing original research and has changed its title to the *International Journal of Dairy Technology* with a worldwide readership.

Milk focus

The first issue of this volume starts with three milk-centred reviews, commencing with a review of the effect of breed on the properties of bovine milk, where yields, heat stability, coagulation and foaming properties can be of major importance. Peptides derived from milk proteins have been proposed for their potential health-giving benefits, but attention must also be given to any adverse effects. The second review covers studies of bioactive milk peptides on both cell lines and animal and human models.

Adulteration of milk is arguably as old as the dairy industry, from addition of extraneous water to more harmful substances. The increasing sophistication of some frauds has had to be countered by a wide range of ever-more advanced analytical methodologies.

The first of the research papers covered the heat and antibiotic resistance of *Bacillus cereus*, a potential spoilage and food poisoning organism that can be found in raw milk worldwide. D100 values of 0.5-3.5 minutes and z values of 10-32.6°C were reported. A study of hygiene in the Rwandan milk and dairy chain, together with microbiological data, concluded that there was a major lack of compliance and consequent high levels of substandard dairy products.

Goats are browsers and there is always the risk that the milk can be tainted by any aromatic plants in their feed. Consumer acceptance of milks from goats fed a diet supplemented with thyme leaves and distilled thyme and rosemary leaves was looked at. Consumers found significant differences between the control milk and milks from the goats fed supplemented diets, with the control being preferred.

Cheese topics

Most cheeses need a surface film or packaging to protect them during maturation and distribution. A study of the quality of caprine cheese coated with edible chitosan and rosemary or oregano essential oils suggested that coating reduced weight loss, lipolytic and proteolytic activity, plus delayed growth of *Mucor* and *Penicillium spp.*

Encapsulated *Lactobacillus acidophilus* was incorporated into a white, dry-salted cheese, with and without added inulin. *Acidophilus* levels remained at up to 106 cfu/g over 60 days, but adding inulin did not improve viability.

Health claims have been made for the polyphenols associated with peanut sprouts. Addition of a nano-powdered peanut sprout supplement to milk during the manufacture of Caciocavallo, a semi-hard pasta filata cheese, was associated with increased lactic acid bacteria in the cheese and greater antioxidant activity.

Camel milk has been regarded as a very difficult raw material for cheese making. A method was described for manufacture-



ing dry and brine-salted soft cheese and a comparison was made between feta-type cheeses from bovine, ovine and camel milks.

Milk fats

Butter working was optimised using a small single-screw extruder, recommending 13°C feed, 1345 s-1 shear and subsequent storage at 7°C, giving a hardness of 42.5 g cm-1, work softening 67 per cent and adhesiveness of 42.5 gf cm-1.

Adulteration of ghee by cheaper fats is a common problem in India. An empirical complete liquefaction time (CLT) test was modified by adding solvent fractionation, enabling ghee adulterated with ground nut oil and/or goat body fat to be detected at the 10 per cent level without using highly sophisticated laboratory equipment.

Whey protein products

Iron deficiency is one of the most common nutritional disorders globally, but water-soluble iron can have undesirable effects. Optimisation of iron encapsulation in a cold-set whey protein isolate gel was described, giving 95 per cent release of iron in a subsequent *in vivo* intestinal simulation.

Succinylation of whey protein concentrate was used to modify protein structure. Solubility at alkaline conditions was increased but reduced at acid pH. While viscosity and emulsion properties such as fat and water binding were improved, there was no change in foaming capacity, but a drop in foam stability. **DTI**

