

Free the fatty acids

Andrew Wilbey discusses the first issue of this year's *International Journal of Dairy Technology*, which features free fatty acids, probiotics and organic milk

The review on the quantification of free fatty acids in dairy products covers both the importance of free fatty acids, particularly the short chain fatty acids, in the generation of dairy flavours and contributions to health and sensory quality as well as analytical methods.

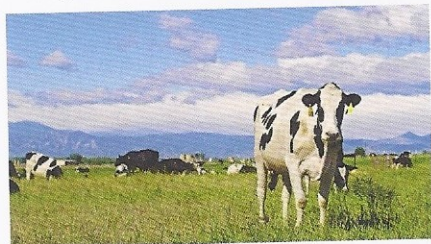
Sarcopenia is an age-related decline in muscle mass that has an increasing importance in the retired population. The second review discusses the aetiology of the condition and ways to overcome it through exercise and/or dietary intervention, where milk proteins provide a suitable source of leucine and other amino acids to support muscle maintenance.

Milks

Probiotic organisms have been used widely in fermented milks but addition to fresh milk is far less common. A 28 day shelf life at 5°C was claimed for a pasteurised, microfiltered, lactose-hydrolysed skim milk containing *Bifidobacterium animalis subsp. lactis*.

Transport of milk from the farm to a dairy adds significantly to energy demands. Since much dairy product processing includes a concentration step, then on-farm concentration could lead to savings. A comparison was made between reverse osmosis and ultrafiltration at low temperature and the former process was found to be the most applicable.

In the search for 'healthy' beverages, a comparison was made between additions of soy isoflavones and phytosterols together with either *Lactobacillus acidophilus* or *Lactobacillus casei*.



During the spring-summer grazing season the milk from the organic herd had higher levels of conjugated linoleic acid and α -linolenic acid.
Photo courtesy: Aurora Organic Dairy

Acceptability was higher with phytosterols than isoflavone additions, though both suffered some phase separation.

Milk compositions were compared between milks from a pair of adjacent organic and conventional farms in the US. During the spring-summer grazing season the milk from the organic herd had higher levels of conjugated linoleic acid and α -linolenic acid with less stearic and linoleic acids.

Fermented milks

Bacillus indicus was used as a probiotic adjunct in production of a non-fat yogurt. The addition resulted in an increased yellowness but did not affect the rheological properties, while sensory properties were acceptable.

Whereas commercial cultures depend on very few strains of selected organisms, there is potentially a wide diversity in the environment. This was demonstrated in an Iranian study of wild *Lactobacillus helveticus* strains in homemade dairy products, where commercial cultures were not available. A similar Tunisian study investigated 60 strains isolated from raw camel milk and eventually selected two strains of *Lactococcus lactis* for their acid production and high yield of biomass.

Partial substitution of milk solids in stirred yogurts by fructose polymers suggested that long-chain inulin could be used in low fat systems but was less satisfactory as a fat replacer. However short-chain inulin and oligofructose may have potential in drinking yogurt.

Disquiet is occasionally expressed about the cholesterol content of milk fat. Twenty-one yeast strains with an ability to assimilate cholesterol were screened for survival in simulated gastrointestinal conditions, 12 of which exhibited potential probiotic characteristics. Rodenticides may be used on farms and are a potential accidental contaminant of milk. Yogurt culture showed sensitivity to brodifacoum at 0.12 mg/mL and to bromadiolone at 0.08 mg/mL.

A sector of the market prefers plant-based equivalents to milk. A comparison was made between milk, coconut milk, soya milk and combinations thereof in a frozen fermented dessert containing *Lactobacillus acidophilus* and *Bifidobacterium bifidum*. Survival of the *Lactobacillus acidophilus* was better in the coconut milk dessert while the *Bifidobacterium bifidum* exhibited good survival in a range of formulations.

Cheese

Feed supplementation can result in changes to both the quantity and quality of the milk. The flaxseed supplementation of a forage-based diet resulted in lower saturated fatty acids and higher α -linolenic and oleic fatty acids. When this milk was made into Raclette cheese, the hardness was reduced, potentially reducing the risk



Many Iberian cheeses made from caprine and ovine milks use coagulants extracted from *Cyanara species*

of crack formation. The sensory qualities of the melted cheese were not affected.

A study of mozzarella-type cheese indicated that reducing the fat content significantly impaired sensory acceptability, primarily through increasing firmness and reducing flavour. Reducing the salt content had only a small effect while increased calcium could counteract some effects of fat reduction.

Many Iberian caprine and ovine milk cheeses use coagulants extracted from *Cyanara species*. A study reported changes in maturation of a cheese from pasteurised caprine milk using a protease from artichoke flowers, the bitterness score being very low and offering a potential production opportunity. **Dil**