

# 乳品研發現況

## R &D of Dairy Products

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- **乳的特色**：被稱作“最接近理想的食品”，供食的方式包括鮮乳、脫脂乳、保久乳、發酵乳、乳油、乾酪、冰淇淋等多種形式。乳製品中含有豐富的鈣和磷，提供優質蛋白質、脂溶性維生素A、D、E、K及全部水溶性維生素。
- **乳的益處**：中醫認為，乳有養心肺、潤皮膚的功效，可補養氣血，善治一切虛勞瘦弱之症，對人體，尤其對小兒及老年人有強身健體之功效。對許多病症患者，也是增加營養、促使早日痊癒的補品。近年來研究表明，常飲乳品，對防治癌症、延緩衰老、滋養皮膚均有作用。



### ■ 乳品摻雜之檢驗技術

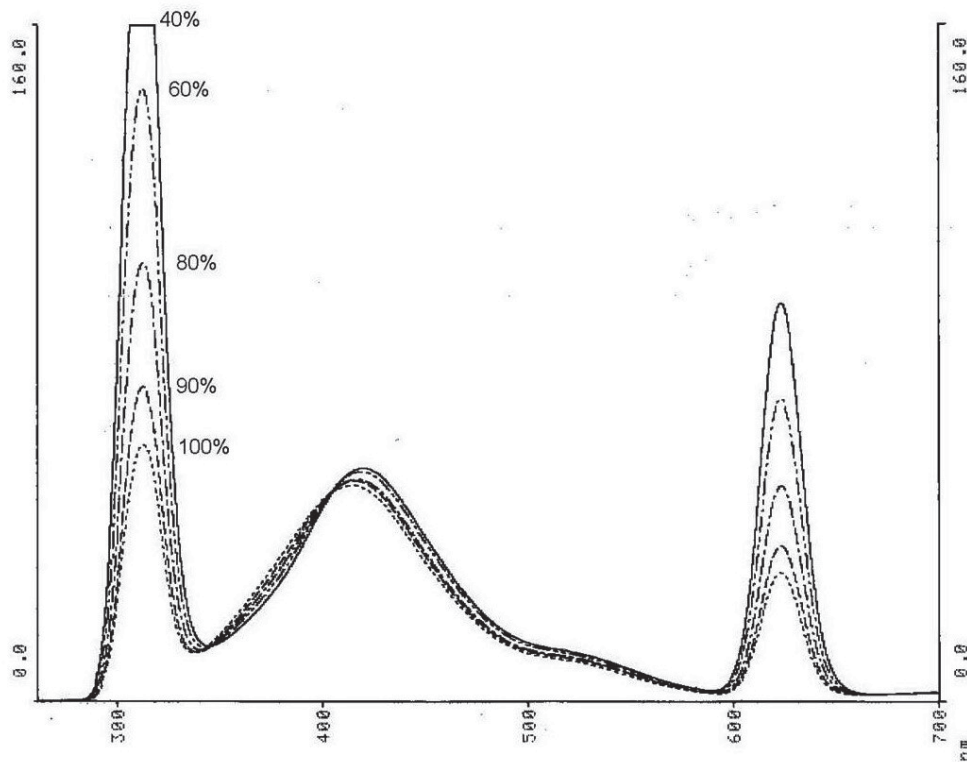
- **技術**：已建立鮮奶螢光檢測技術，可檢測鮮奶中摻雜還原乳的比例，並且建立國內參加鮮奶標章各乳樣之螢光圖譜。
- **應用**：配合農委會之鮮奶標章管理，可以應用於市售鮮奶的檢測。



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## 不同鮮乳純度之螢光反應圖

The fluorescence values of fresh milk and reconstituted milk from laboratory mixed in different ratios

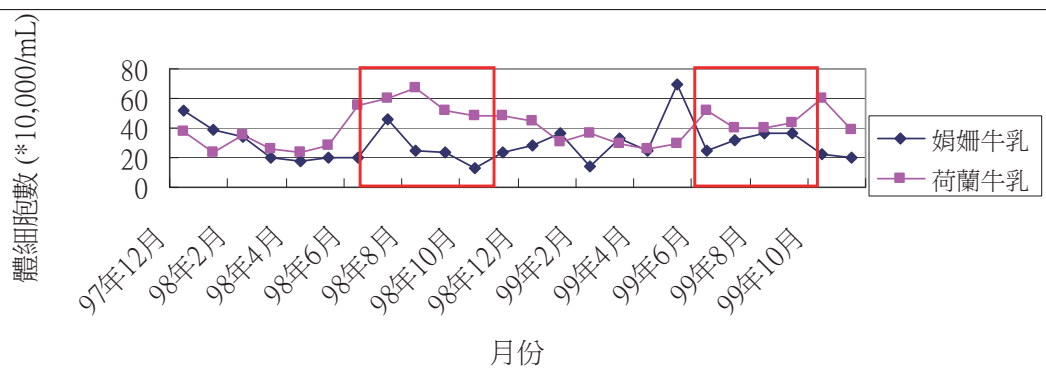


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## 畜產試驗所引進娟姍牛乳品質之研究

Quality evaluation of milk from imported Jersey cow of LRI

• 比較本所引進之娟姍牛及原有飼養荷蘭牛二者之生乳品質，結果顯示娟姍牛之乳脂肪、蛋白質、總固形物等組成之平均都高於荷蘭牛；**娟姍牛之體細胞數則低於荷蘭牛**，顯示娟姍牛乳乳組成較高，可應用於特殊化乳製品之開發。而娟姍牛在夏季體細胞數較低，**具有較荷蘭牛耐熱之特色**。





## 台灣地區羊乳品質之研究 Quality evaluation of goat milk in Taiwan

- 中國國家標準於99年6月修正國內生乳標準時，建議生乳之非脂肪乳固形分由8.0%調高至8.25%。
- 在100年度調查期間，國產生、鮮羊乳之**非脂肪乳固形物未符合CNS生鮮乳標準各佔8及39 %**。

Sample	Month (Season)	Number	SNF (%) range	SNF (%) average
Raw goat milk	2 (Winter)	17	7.81 ~ 9.15	8.74±0.30
	4 (Cool)	17	8.07 ~ 9.04	8.56±0.25
	6 (Summer)	18	7.42 ~ 9.39	8.07±0.65
	8 (Summer)	17	8.04 ~ 9.25	8.38±0.31
	10(Cool)	16	8.09 ~ 9.35	8.38±0.31
Fresh goat milk	2 (Winter)	19	7.68 ~ 9.05	8.20±0.46
	4 (Cool)	19	7.75 ~ 8.90	8.21±0.51
	6 (Summer)	19	7.71 ~ 9.10	8.13±0.47
	8 (Summer)	19	7.75 ~ 8.79	8.22±0.41
	10(Cool)	19	7.63 ~ 9.10	8.13±0.47



### The investigation and analysis of goat milk in Taiwan and detection of heated level of goat milk

The qualities of fresh goat milk in Taiwan were investigated during 2011-2012. The goat milk fat, protein and solid-not-fat percentage ranges of fresh milk were 2.78-3.56, 2.96-3.17 and 7.96-8.22 %, respectively. A FAST (fluorescence of advanced Maillard products and soluble tryptophane) method for identification of heated level of goat milk was evaluated. This method is based on the simultaneous determination of protein denaturation by Trp fluorescence and formation of fluorescent advanced Maillard products in the goat milk.





## 微生物之篩選及利用

- ▶ **技術**：已建立自乳品或植物性醃製品篩選乳酸菌及厭氣性微生物之培養技術，並確立乳酸菌機能特性評估技術，及建立微生物及醣解酵素包埋處理技術。
- ▶ **應用**：可應用於優良微生物之篩選、鑑定、機能特性評估分析及保存，亦用於優質酸酪乳製品、機能性乳製品及其他新產品之開發，提供乳品樣化之選擇。高效率厭氣微生物篩選、培養製程，可提高厭氣微生物的存活率及品質，並可供作厭氣微生物產品研發及機能特性評估。

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Identified of lactic acid bacteria



The calcium alginate beads of lactic acid bacteria



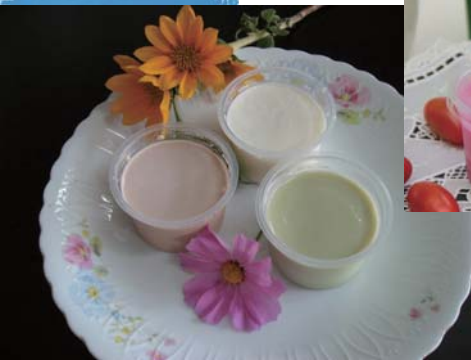


## ■ 優質特色化乳品之開發利用

- ▶ **技術**：已建立利用優質國產生乳產製凝態優酪乳、新鮮起司、薑撞乳、克弗爾發酵乳果凍、發酵乳錠、乳酒、水果優酪乳製程之技術。
- ▶ **應用**：可應用於鮮乳市場及教學推廣，增加國人對乳品之消費量。



## Multiplicity of fermented milk products



Yogurt with different natural sweetener



Fruit Yogurt



Oligosaccharide milk pudding



## Multiplicity of fermented milk products



**Kefir and kefir grains**



**Fermented milk pastille**



**Fresh cheese**



## Kefir cheese

- Kefir is a mixed of culture consisting of lactic acid bacteria, yeasts and acetic acid bacteria. Cheese products made with kefir starter culture were characterized by longer preservation time, improved aroma, taste, texture characteristics and increased degree of openness.





# CPPs of Kefir

- Purify the casein phosphopeptides (CPPs) from kefir and analyze its bioactivity.
- CPPs improve calcium absorption by binding with the calcium. In this study, the CPPs of kefir combined higher calcium contain than caseins of milk.
- CPPs had antibacterial activity to against *Streptococcus mutans* (齲齒菌).



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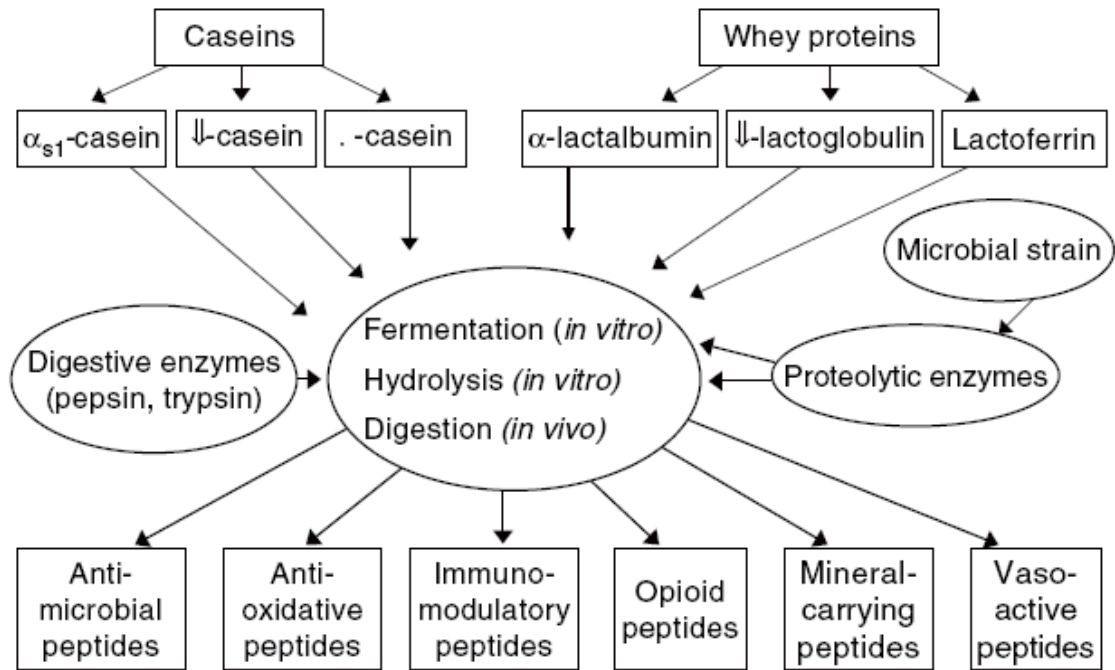
Future







# Identify new functional compounds



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