

POLONIUM 3541/R02 Project (2001-2002)

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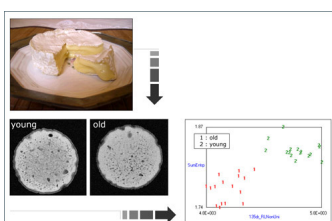


New image analysis techniques to control food quality were developed. It was investigated whether texture parameters of MR soft cheese images could be used for monitoring of cheese ripening process. The main goal of the project, however was to develop the algorithms for texture analysis of MR soft cheese images. Various image processing techniques and MR acquisition protocols were tested.

The developed texture analysis method enables a classification of different stages of cheese ripening. The proposed algorithm consists of:

- An automatic detection of the regions of interest (ROI)
- An estimation of texture features for each ROI
- A feature selection to obtain the most discriminative texture features
- A classification of cheese images acquired during the ripening process

It is demonstrated that the texture parameters of MR cheese images can be efficiently used for evaluation of the ripening process. The application of PDW (*proton density weighted*) MR acquisition protocol for MR imaging assures the correct image classification. The results obtained are crucial for the improvement of cheese quality.



Camembert type cheese (a), sample MR cross-sections of matured (old) and young cheeses for PDW protocol (b), distribution of texture features (c).

G. Collewet, M. Strzelecki, F. Mariette, Influence of MRI acquisition protocols and image intensity normalization methods on texture classification, *Magnetic Resonance Imaging*, 22, 2004, pp. 81-91