IDF Symposium on Cheese

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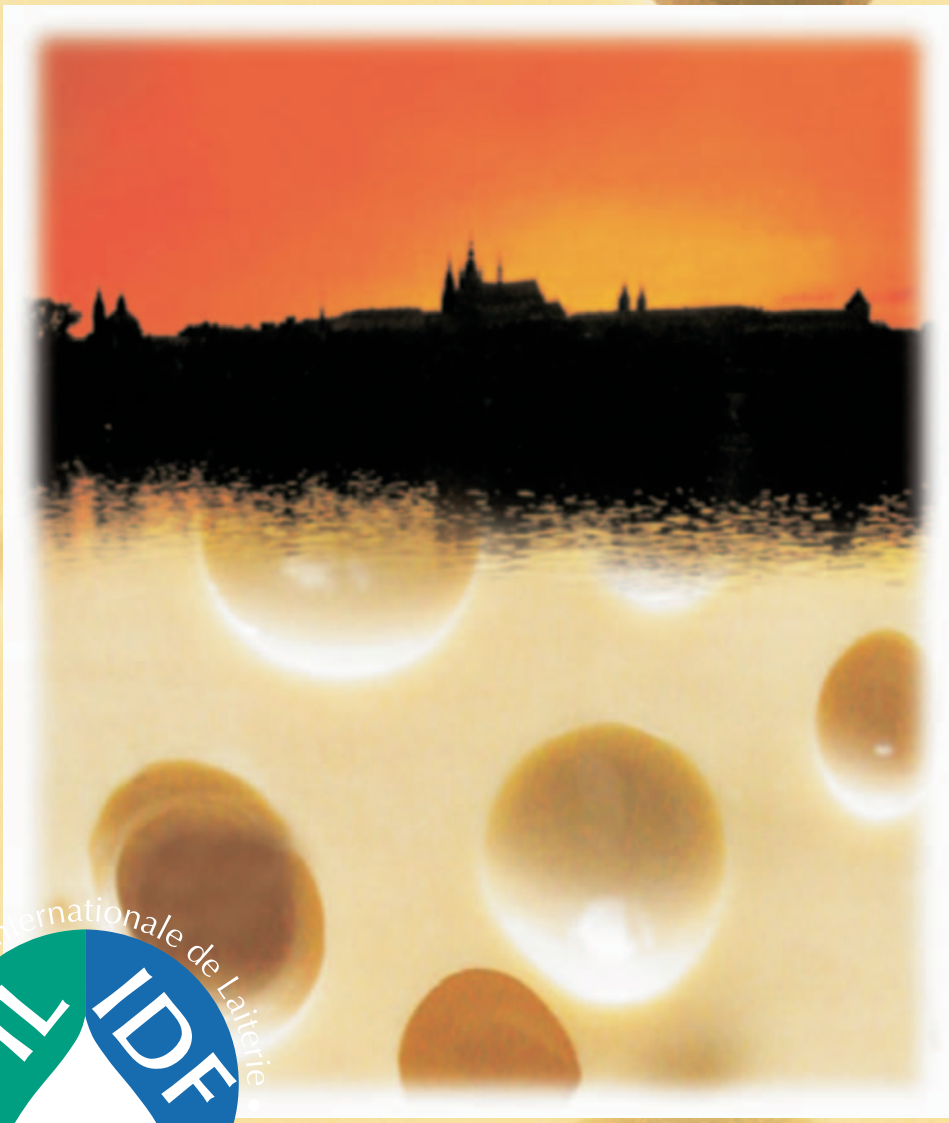

Ripening, Characterization & Technology

Book of Abstracts

functions. It provides an analytically accomplished chemical profiles to all production steps. This quality information serves as a basis for any evaluation, including identification of source, identity, and quality which could serve as scientific background for legal steps in the process of obtaining and enforcing the Protected Designation of Origin (European Council Regulation (EEC) No. 2081/92) or different safety standards.

In order to assign suitable chemical markers determination of origin, processes of production and seasoning, their presence along production chain and during cheese ripening must be monitored. Besides determination of suitable markers such experiment can give us information about transport of individual chemicals and their transformations during cheese production. Obtained knowledge can lead to changes in production technology in order to get product with desired seasoning and health properties.

Slovenian hard cheese „Nanoski sir„ under consideration for the Protected Designation of Origin (PDO, European Council Regulation (EEC) No. 2081/92) was studied. VOC profiles were determined by dynamic headspace with cryofocussing in animal feed, raw milk and cheese. VOC composition in cheese was determined every two weeks during three months ripening period.

Keywords: VOC, cheese, ripening

P022 CHARACTERIZATION OF THE MICROSTRUCTURE OF TERRINCHO EWE CHEESE

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The microstructure of Terrincho cheese – a Portuguese traditional cheese bearing a Protected Denomination of Origin, was assessed by scanning electron microscopy (SEM). Terrincho cheese was manufactured according to the traditional protocol using pre-filtered, plain raw ewe's milk of *Churra da Terra Quente* breed, without addition of starter of any other type of cultures, and coagulated with animal rennet. The cheeses were salted upon unmoulding, and placed in ripening chambers held at 10–12 °C and 88–89 % relative humidity for a period of 30 days. Cheeses were sampled at 0, 15 and 30 days. Cheese specimens were prepared for SEM by fixing small blocks of cheese (cut from freshly sampled cheeses) in formaldehyde, at room temperature for 1 month, cutting it into 1–2 mm thick slices using sharp razor blades and dehydrating in a graded ethanol series. Slices in absolute ethanol were critical point dried from carbon dioxide, mounted on SEM stubs using adhesive tabs, sputter-coated with gold, and examined using a JEOL scanning electron microscope.

The microstructure of the (semi-soft) curd of Terrincho cheese appeared as a continuous casein network possessing a spongy appearance. The various microbial populations present within the cheese were found to grow in the form of colonies, embedded in the casein network and close to the void spaces originally occupied by fat. Microbial colonies were roughly spherical, with bacteria tightly packed in the centre. A similar pattern of microbial growth was observed throughout ripening. Other inclusions were also pinpointed, namely salt crystals.

Keywords: Microstructure, Terrincho cheese, casein network, microbial growth

P023 EFFECTS OF HIGH PRESSURE HOMOGENISATION ON RIPENING PATTERNS OF CACIOTTA CHEESE

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The principal aim of this work was to compare cheeses obtained from cow milk previously subjected to high pressure homogenisation (HPH) at 1000 bar with those produced from raw and heat treated cow milk. The HPH treatment had both direct and indirect effects on cheese characteristics and their evolution during ripening.

The direct effects were principally linked to the quali- and quantitative modification of the microbial population, microstructure and water binding capacity of proteins. The indirect effects involved principally the activities of the microbial population and of the naturally occurring enzymes. The gas-chromatographic analyses of the free fatty acids, the SDS-Page profiles as well as the GC-SPME measurements of volatile compounds released during ripening evidenced that dynamic pressure can be regarded also as an useful tool to differentiate and positively characterise products obtained from the same raw material.

The results obtained indicated that the activation of proteolytic and lipolytic activities in cheeses obtained from pressurised milk could be linked to an enhancement of endogenous enzymatic activities, a shift of microbial population or to a different exposure of the proteins and lipids to enzymatic activity.

Keywords: High pressure homogenisation, Caciotta cheese, proteolysis, lipolysis.