



food safety and food biotechnology: diversity and global impact

Bologna - Italy

August 29 - September 2, 2006

The 20th International ICFMH Symposium

Organised by

- INTERNATIONAL COMMITTEE ON FOOD MICROBIOLOGY AND HYGIENE (ICFMH)
- INTERNATIONAL UNION OF MICROBIOLOGICAL SOCIETIES (IUMS)
- ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA
- SOCIETÀ ITALIANA DI MICROBIOLOGIA AGROALIMENTARE E AMBIENTALE (SIMTREA)



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

SIMTREA

3.1 Fermented foods: traceability, labels and role of native microbes (P)

Detection and typing of *Lactococcus garvieae*, *Enterococcus* spp. and *Staphylococcus xylosus* characterizing natural fermentations of Italian dairy products and sausages

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Keywords: fermented products, strain typing, food typicity

The study arises from a close collaboration among researchers who have the same aim of understanding the role of autochthonous microbial populations responsible for the typical properties of several traditional cheeses (Toma piemontese DOP, Robiola, Caprino Lombardo) and natural fermented sausages (salami friulani). Following the dynamic changes in the bacterial population during production, it was determined which are the species more represented and those more correlated with the typicality of these products. Based on the results obtained, we focused our attention on *Lactococcus garvieae*, *Enterococcus faecium*, *E. italicus* (a new enterococcal species) and *Staphylococcus xylosus* strains. The isolates were characterized by using tests with a high discriminatory power, such as analysis of the polymorphism of ribosomal DNA internal transcribed spacers, restriction analysis and partial sequencing of housekeeping genes, AFLP, Sau-PCR and RAPD analysis. Moreover, investigation on the phenotypic and biotechnological properties of the isolates affecting the flavor and structure of foods, such as the acidification rate, proteolysis and lipolysis, were carried out. We also evaluated the presence of some phenotypic characteristics correlated to the expression of virulence factors, such as antibiotic resistance, production of biogenic amines, gelatinase and haemolytic activity. Lastly, experiments with the aim to detect the presence of specific genetic determinants encoding these virulence factors, through specific amplification tests and/or Southern hybridization were performed as well.

Acknowledgements: the financial support of Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR) (Prin 2004) is gratefully acknowledged.