

Traditional fresh sheep cheese Karaklašanski skakutanac

Research activities and outcomes
2007 – 2010

Tomislav Pogačić, PhD student



Karakačanski skakutanac

- Project: Functional dairy products made of sheep milk (Project No. 178-1782128-2124).
- Head of project: Prof.dr.sc. Dubravka Samaržija
- PhD student: Tomislav Pogačić
- Institution: University of Zagreb, Faculty of Agriculture
Department of Dairy Science





Bulk DNA isolation
Culture-independent

Microbiological analysis
CATC, Rogosa, M17
Microbial consortia preparation
Bulk DNA isolation
Culture-dependent

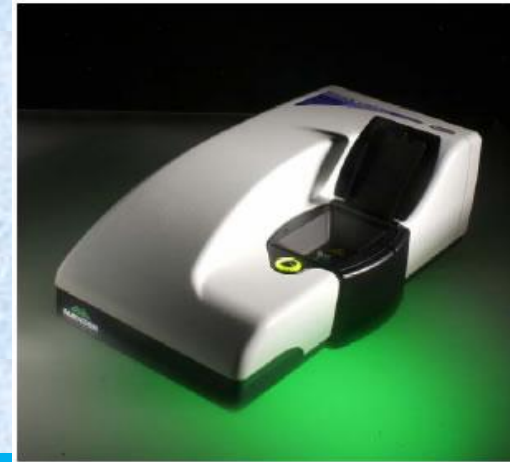


CD&CI
PCR-ARDRA
PCR-DGGE
Sequencing of
16S rRNA gene

Casein particles isolation
Dynamic Light Scattering analysis

Chemical composition





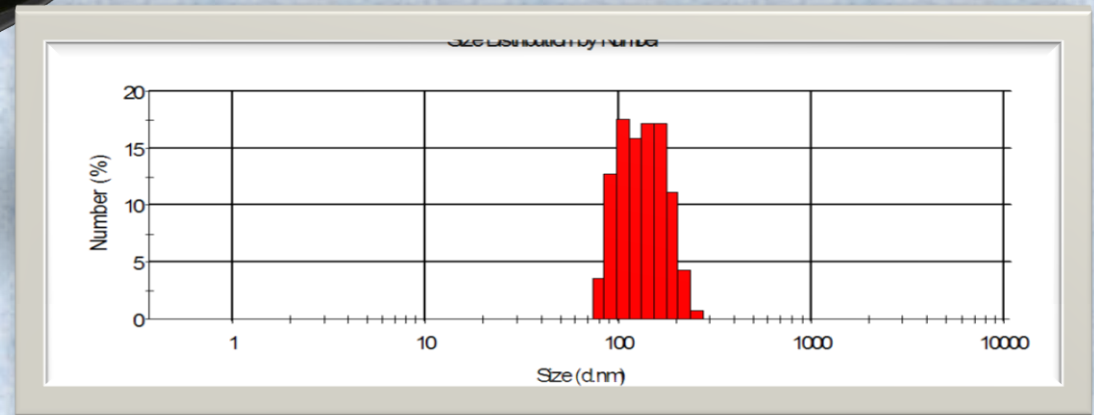
Pogačić, T., Samaržija, D., Havranek, J., Jurašin, D., Pecina, M., Dutour Sikirić, M. (2008): Method for Measuring Casein Particles Size in Artisanal Fresh Sheep Cheese by Dynamic Light Scattering. 5th IDF Symposium on Cheese Ripening, 9-13/3/2008; Bern - **Switzerland**. Book of Abstracts - 115.

Dynamic Light Scattering





Pogačić, T., Samaržija, D., Havranek, J., Pecina, M., Jurašin, D., Dutour Sikirić, M. (2009): Size Distribution of Casein Micelles in Sheep Milk Studied by Dynamic Light Scattering. [4th IDF Dairy Science & Technology Week, 20 - 24/4/2009; INRA - Rennes - France](#). Book of Abstracts - 54.





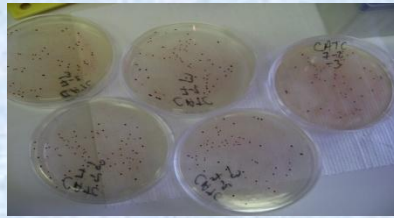
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Cheese homogenisation
Dilutions
Rogosa, CATC, M17



5 plates / medium

1 ml from every plate ~ 5ml



5ml of consortia

2 ml for DNA isolation



2 ml

3 ml for consortia preservation



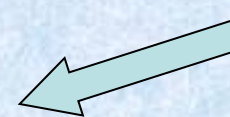
3 ml



Glycerol 30 % v/v

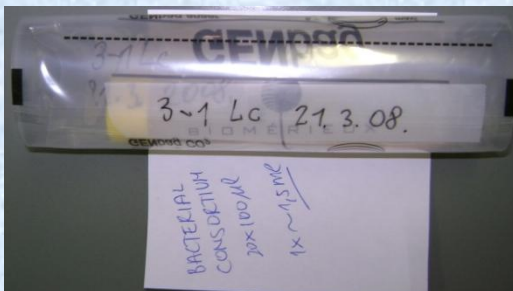


aliquotes – 20/consortia



Microbial consortia

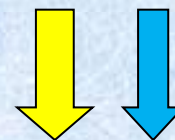
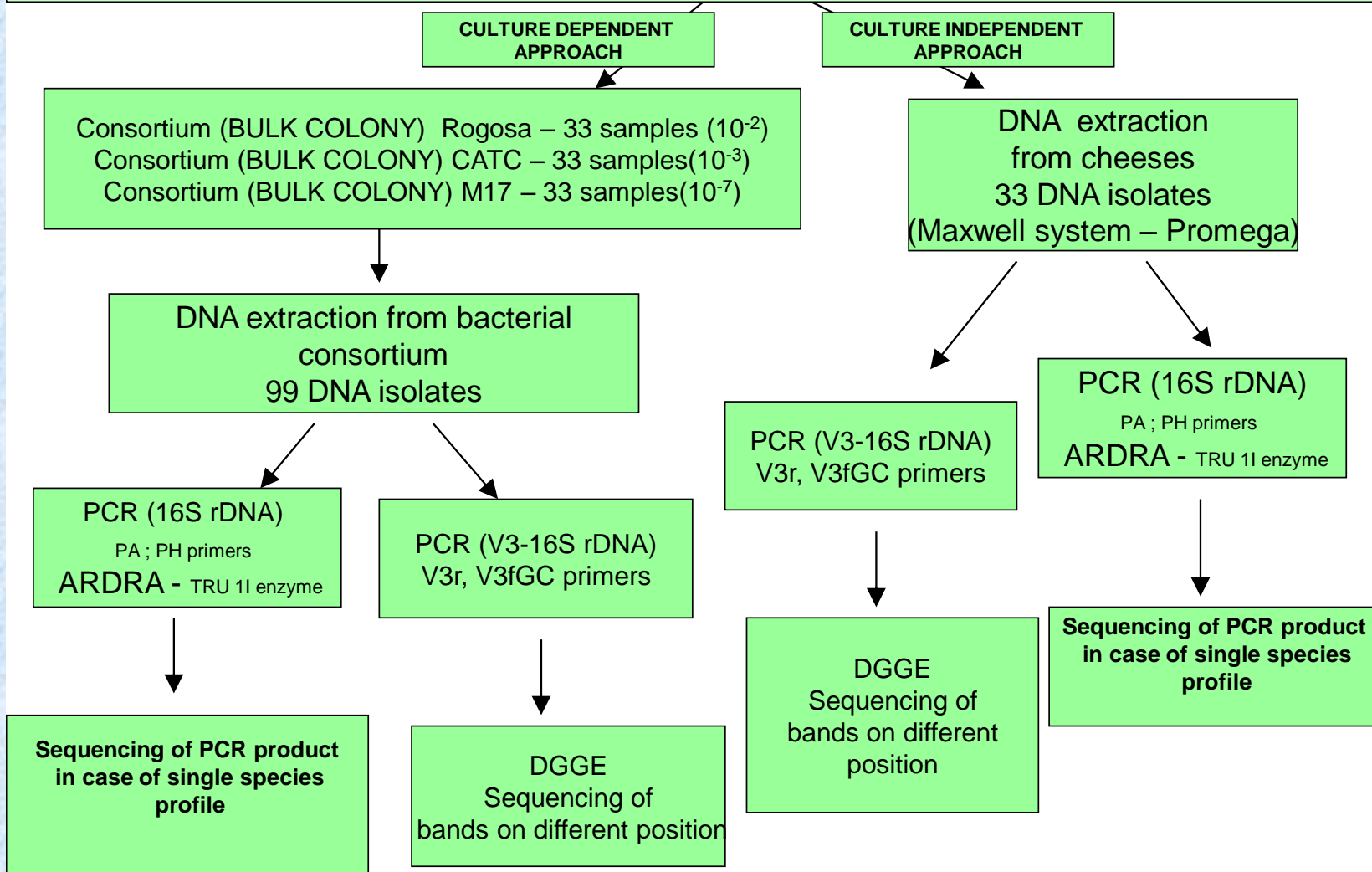
Rogosa, CATC, M17 - 5 plates/medium/consortia
33 cheeses → 99 consortia / 3 ml
20 aliquotes of every consortia / 100 ul



Storage – at -20°C



MOLECULAR CHARACTERIZATION OF THE MICROBIAL COMMUNITY ASSOCIATED WITH TRADITIONAL FRESH SHEEP CHEESE KARAKAČANSKI SKAKUTANAC



- Pogačić, T., Samaržija, D., Corich, V., D'Andrea, M., Kagkli, D-M., Čanžek Majhenič, A., Rogelj, I. (2009): Molecular Characterisation of the Indigenous Microflora of Artisanal Fresh Sheep Cheese Karakačanski Skakutanac by PCR-ARDRA & PCR-DGGE.

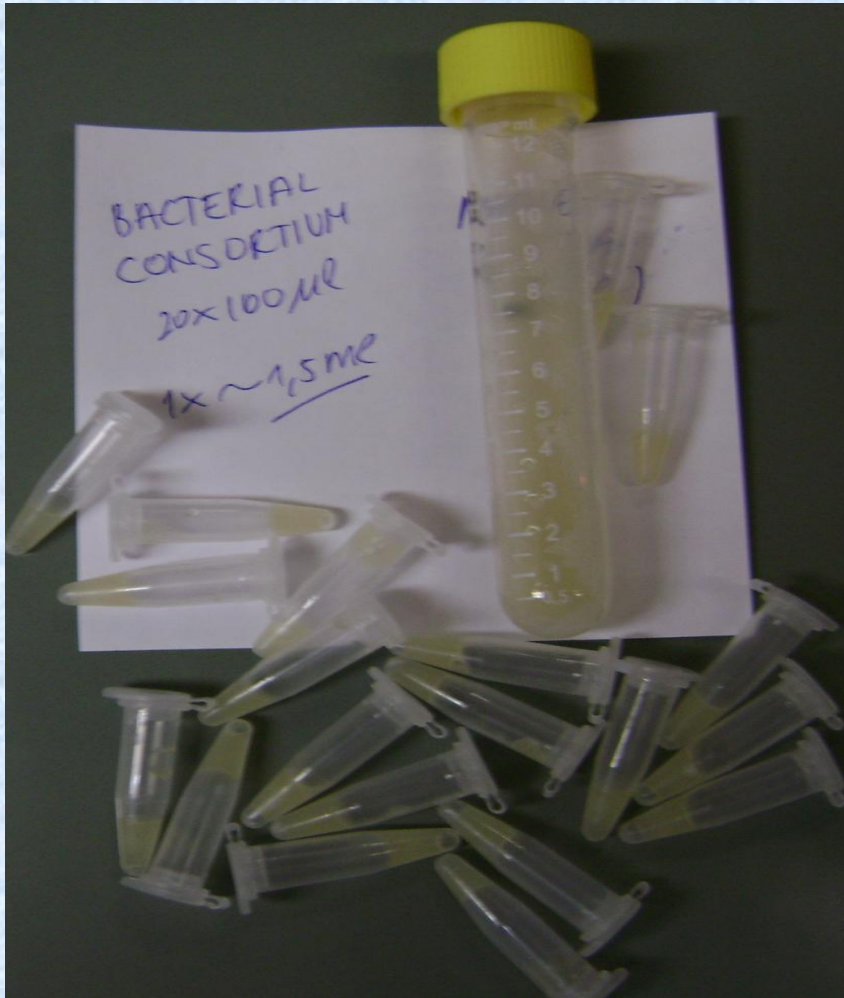
4th IDF Dairy Science & Technology Week, 20 - 24/4/2009; INRA - Rennes - France. Book of Abstracts - 114.

- Pogačić, T., Samaržija, D., Corich, V., D'Andrea, M., Kagkli, D-M., Giacomini, A., Čanžek Majhenič, A., Rogelj, I. (2010): Microbiota of Karakačanski skakutanac, an artisanal fresh sheep cheese studied by culture-independent PCR-ARDRA and PCR-DGGE. Dairy Science & Technology, 90 (4) 461–468. The original publication is available at www.dairy-journal.org.



Pogačić, T., et al. (2010): DLS analysis of casein system in raw sheep milk, cheese curd and fresh sheep cheese – manuscript in preparation

Further steps



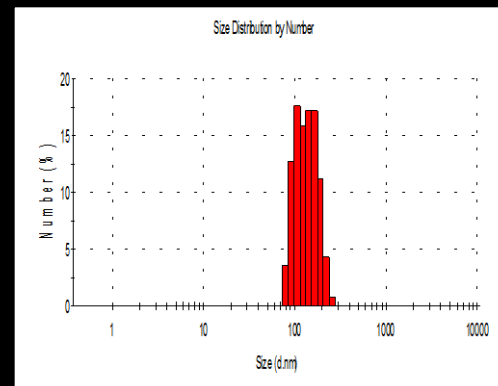
- Genetic and functional characterization of indigenous isolates
- Single strain – mix strains functionality assessment
- ...

PhD research training

Croatia

Institute Rudjer Bošković

Division of Physical Chemistry
Laboratory for Radiochemistry



DLS analysis
April – September 2007
(periodically)



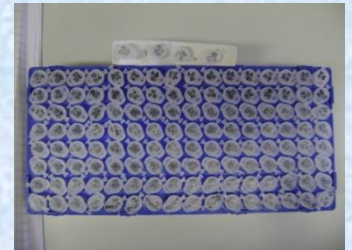
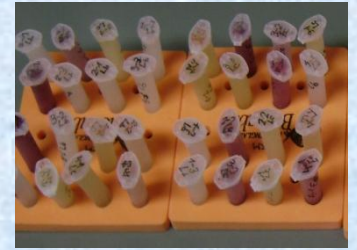
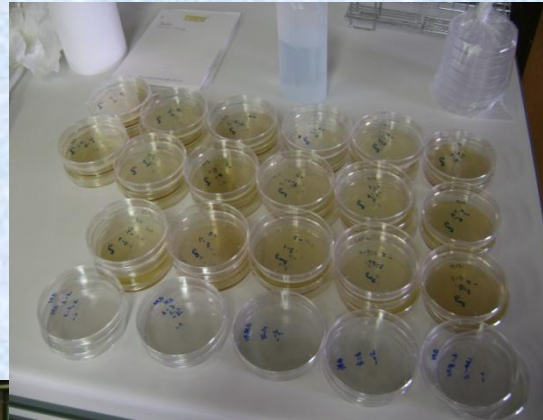
Slovenia

University of Ljubljana

Biotechnical Faculty

Department of Animal Science

Chair of Dairy Science



Culturing; consortia preparation;
DNA isolation
March/April 2008

Italy
Universita di Padova
Facolta di Agraria
Campus di Conegliano
CIRVE – Laboratorio di microbiologia

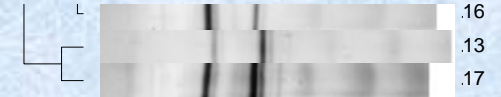
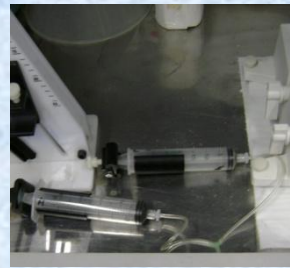
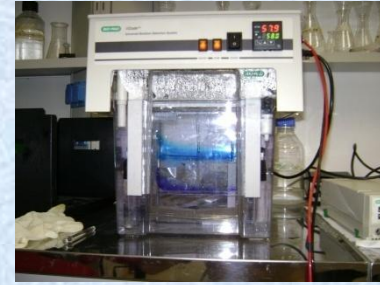
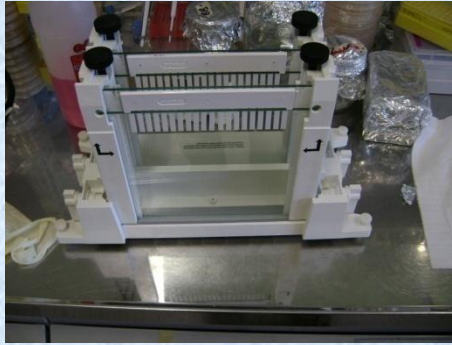


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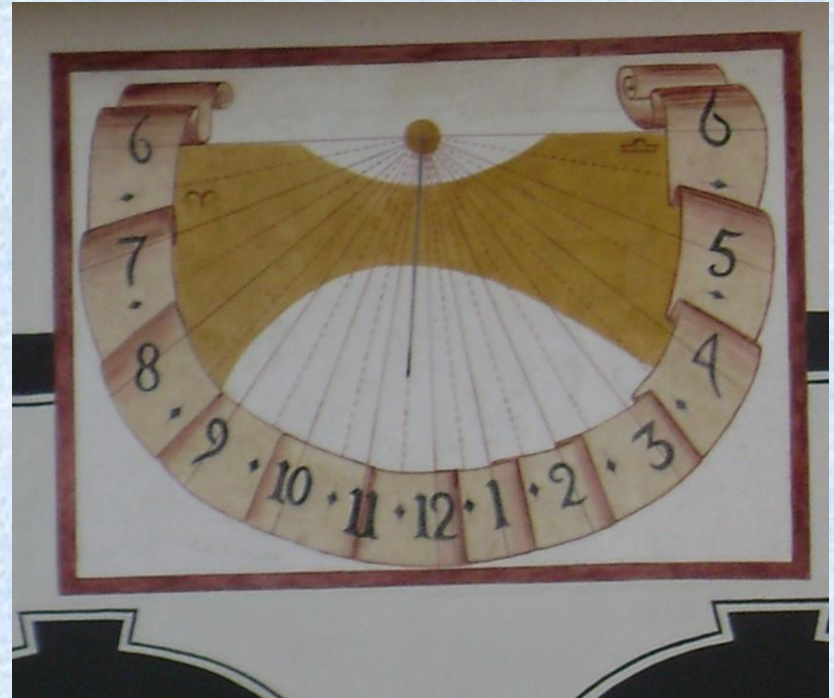


PCR-ARDRA; PCR for DGGE
May – July – 2008

Universita di Padova Facolta di Agraria Dipartimento di Biotecnologie Agrarie



DGGE
June/July – 2008



Acknowledgement

Institute Rudjer Bošković

- **PhD Maja Dutour Sikirić**
- PhD student Darija Jurašin

Università di Padova

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- **Prof. ssa Viviana Corich**
- Prof. Alessio Giacomini
- PhD Maura D'Andrea
- PhD Dafni-Maria Kagkli
- PhD Enrico Baldan
- PhD Milena Carlot

University of Ljubljana

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- Doc.dr.sc. Andreja Čanžek Majhenič
- Univ.dipl.ing. Tanja Obermajer
- PhD student Aljoša Trmčič

Mentor: Prof.dr.sc. Dubravka Samaržija

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Research interests:

- Microbial ecology of raw milk cheeses
- Indigenous LAB – genetic and functional characterization
- Cheese metagenomic

 [Publications - Web of Science](#)

 [Publications – CROSB I](#)



“There is no room for competition,
there is just room for collaboration.
The task is so huge.”

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