

5th IDF SYMPOSIUM ON CHEESE RIPENING

9-13 March 2008, Bern, Switzerland

FINAL PROGRAMME & BOOK OF ABSTRACTS



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department
of Economic Affairs DEA
Agroscope Liebefeld-Posieux
Research Station ALP



organized under the auspices
of the International Dairy Federation

Screening of *Lactobacillus plantarum* and *Lactobacillus paracasei* Strains for their Capability to Reduce Cholesterol in Synthetic Medium and Milk

S. Belviso*, M. Giordano, G. Zeppa

Turin University, Department of Exploitation and Protection of the Agricultural and Forestry Resources, Italy

simona.belviso@unito.it

During the last two decades several attempts to reduce the cholesterol level in synthetic media were carried out using a large variety of lactobacilli, lactococci, and bifidobacteria strains, mainly in the presence of bile salts and in anaerobiosis conditions. Some dairy thermophilic cultures and probiotics, isolated from human gut, were also tested by some authors for the ability to decrease cholesterol in milk.

In this work 8 *Lactobacillus plantarum* and 5 *Lactobacillus paracasei* strains of food origin, belonging to the collection of the Department of Exploitation and Protection of the Agricultural and Forestry Resources (Di.Va.P.R.A.), were screened in order to test their cholesterol lowering-action in de Man, Rogosa, Sharpe (MRS) broth, supplemented with cholesterol; a commercial strain of *Lactobacillus acidophilus* was used as positive control since the ability of this species to assimilate cholesterol was widely established in MRS with added bile salts and in anaerobiosis. The synthetic

medium was inoculated at 2 % for 24 hours at 37°C; spent broth and uninoculated control were assayed for their cholesterol content by enzymatic analysis.

Among all tested strains, two *L. plantarum* and three *L. paracasei* strains gave rise to a significant reduction of the cholesterol level in MRS broth; in particular *L. plantarum* strains lowered the cholesterol content by an average of 19.4 %, while *L. paracasei* strains by an average of 6.8 %. The two *L. plantarum* strains possessing relatively high cholesterol-lowering activity in MRS broth were also tested in UHT whole homogenized milk following the same procedure. Results showed that *L. plantarum* strains maintained this activity also in milk; in fact after 24 hours the decrease of the cholesterol ranged from about 5.0 % to 8.2 % without significant variations between the two strains.

Keywords: cholesterol, *L. plantarum*, *L. paracasei*, milk
