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## Production of Conjugated Linoleic Acid (CLA) by Lactic Acid Bacteria Isolated from Italian Traditional Cheeses

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Conjugated Linoleic Acid (CLA) is a mixture of positional and geometric isomers of linoleic acid (C18:2) in which double bonds are conjugated. Studies with animal models have demonstrated that CLA consumption and particularly of *cis*-9, *trans*-11 (c9t11-18:2) and *trans*-10, *cis*-12 (t10c12-18:2) isomers inhibits the initiation of carcinogenesis and tumorigenesis, reduces body fat content and increases muscle mass, decreases atherosclerosis, improves hyperinsulinemia and enhances the immune system. The CLA are produced through the isomerization of linoleic acid or vaccenic acid by animal, but various studies show that they can be also synthesized by microorganism in milk or in different cultural substrates.

The aim of this work was to select lactic acid bacteria strains able to synthesize CLA and useful as starters or adjunct cultures for the development of yogurt and cheese with potential health or nutritional benefits.

This research was performed with about fifty strains of *Lactobacillus plantarum*, *Lactobacillus paracasei*, *Lactobacillus casei*, *Lactococcus lactis*, *Lactococcus lactis* spp. *cremoris*, *Lactococcus lactis* spp. *lactis* isolated from traditional cheeses of Piedmont region (North-West, Italy).

Among these strains, the *Lactobacillus plantarum* 110-C9.10.2 and the *Lactobacillus paracasei* 37-B8.7 have shown, on synthetic medium (MRS broth) added with free linoleic acid, the highest CLA production (13 and 27 mg L<sup>-1</sup> of medium, respectively).

Further studies are in progress to evaluate the activity of these strains on milk during yogurt and cheese production.

Keywords: conjugated linoleic acid, lactic acid bacteria, milk

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