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# Cheese Model to Assess the Production of Biogenic Amines by Coagulase Negative Staphylococci in paste

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Coagulase Negative Staphylococci (CNS) may be naturally present in some foods. They are also used as starters in dairy fermentation processes where they are involved in the development of the flavour and typicity because of their aromatic, enzymatic and pigmentary capacities. Most species of CNS are generally regarded as safe but their innocuousness in food processing need to be proved at a species and infra-species level. Indeed starter producers and food manufacturer are having to face to more and more severe sanitary criteria and rules. In particular the capacity to produce biogenic amines in food matrices need to be evaluate for the CNS strains which own the coding gene of decarboxylase and exhibit *in vitro* production.

A semi-hard pasteurised milk cheese model was developed to optimize biogenic amines production by CSN added. Two starters were combined in either low/high or high/low levels: (1) the commercial EzalMA400 (lactococci and *Streptococcus thermophilus*) and (2) a thermophilic proteolytic *Lb helveticus* + *Lb delbrueckii* mixture. In comparison to starters on their own, we tested the addition either of a decarboxylase plus (*dc*+) lactobacillus as control or *dc*- or *dc*+ CNS strains ($10^6$). The cheeses were salted in brine to reach 2.5% sodium chloride in the cheese moisture, covered with wax and ripened for four months at 14°C. We adopted the low/high level starter combination because it produced more favourable environmental conditions for the survival of *dc*+ or *dc*- CNS which initial count was maintained until 4 months of ripening, a higher proteolysis and higher production of biogenic amines by dc+ lactobacilli. When *dc*+ CNS was added, biogenic amines were produced in higher amounts than with starters on their own or when *dc*- CNS was added. The nature and amount of amines was strain dependent and in relation to their *in vitro* capacity.

Keywords : biogenic amines, cheese model, Coagulase Negative Staphylococcus, innocuousness