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Microbial diversity of traditional Sicilian cheeses

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Traditional Sicilian cheeses are manufactured in small size farms with raw milk from animals of indigenous breeds and without the addition of starter cultures. In order to transform milk into cheese, the presence of lactic acid bacteria (LAB) is required. The main sources of desirable LAB are generally the milk, the rennet, the equipment used during processing and the dairy environment.

In the last years, the microbial characterisation of traditional Sicilian cheeses, such as Caciocavallo Palermitano, Protected Designation of Origin (PDO) Pecorino Siciliano and PDO Vastedda della valle del Belice have been the object of different studies conducted by our research group. To this purpose, the aim of the present study was to describe the microbial population of traditional Sicilian cheeses.

The analysis of the microbial diversity of these cheeses revealed the presence of several dairy LAB at dominant levels, while the undesired microorganisms, including coliforms and coagulase-positive staphylococci (CPS), were at very low densities. Overall, the presence of the pathogenic bacteria *Listeria monocytogenes* and *Salmonella* spp. was never detected. This may be due to the quality of milk, the optimal maintenance of wooden vats and on following good production practices. Furthermore, the technological characterisation of the LAB found in these cheeses and in raw materials showed interesting dairy properties, including acidification capacity, diacetyl formation, autolytic properties and the ability to inhibit undesired bacteria.

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