

MICROBIAL RISKS ASSOCIATED WITH TRADITIONAL CHEESES

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Nowadays, there is a growing interest towards traditional cheeses. These cheeses are especially popular in Mediterranean countries due to their unique flavor and texture. Traditionally they are produced from raw milk of cow, sheep or goat and fermented by naturally occurring indigenous lactic acid bacteria. The quality of these cheeses is based on the microbial associations within the respective region and production recipes change from one town to another and even from one manufacturer to another within the same town. Hygiene practices in the dairy and in the cheese rooms are the most important criterion in traditional cheese manufacturing. Based on the identification of hazards, microorganisms of concern are *Escherichia coli* O157:H7, *Salmonella*, *Listeria monocytogenes*, *Yersinia enterocolitica*, *Staphylococcus aureus* (toxin producing strain), may contaminate milk and grow in traditional cheeses when raw milk is utilized during manufacturing. Good quality of raw milk from healthy animal contains fewer pathogenic microorganisms and also contain proteins (lactoferrin) and enzymes (lactoperoxidase) that inhibit or eliminate these microorganisms. During cheese manufacturing, conditions need to be favourable for the growth of lactic acid bacteria and the elimination of pathogenic microorganisms by controlling the variables such as temperature, moisture, and acidity. In one study conducted in UK, the quality of raw milk cheeses were found to be unsatisfactory due to the levels of *S. aureus* at 10^4 cfu/g, *E. coli* at 10^5 cfu/g, and *L. monocytogenes* at 10^2 cfu/g. Cheeses having unsatisfactory quality are frequently sampled from dairies having little or no confidence in management and control systems, and stored at inappropriate temperatures ($> 8^\circ\text{C}$). Some precautions need to be taken regarding raw milk traditional cheeses. These should not be sold unripened for consumption. Traditional cheese manufacturers themselves play a significant role in monitoring the safety of their products and implement and maintain a permanent procedure based on the hazard analysis and critical control point (HACCP) principles.