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Strategies for reducing the amount of biogenic amines in cheese

Fabio Minervini
Università degli Studi di Bari Aldo Moro, Italy

Biogenic amines (BA) are low molecular weight organic compounds that can be present in fermented foods. A high content of biogenic amines in dairy products undermines food quality and safety and has toxicological consequences for consumers. Therefore, the potential role of microorganisms with amine degrading activity acquired a particular interest in the last few years to prevent or reduce accumulation of biogenic amine in food products, especially fermented foods. BA are mainly produced by decarboxylation of amino acids by different microorganisms, including Enterococci and heterofermentative lactobacilli. Therefore, the detection of bacteria possessing amino acid decarboxylase activity is important to estimate the risk of BA food content and to prevent biogenic amines accumulation in food products. Otherwise, some bacteria are able to degrade BA. Little is known about the enzymatic activities responsible for BA degradation, but the enzymes named Amine Oxidases (AOs) are involved in this process. The present study showed that to reduce the amount of BA in cheese through the use of selected non-starter lactic acid bacteria is a feasible strategy. This study also focused on the genetic and enzyme bases of lactic acid bacteria involved in the genesis and degradation of BA.

fabio.minervini@uniba.it