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Developing Novel Wine Products Containing Biopreservatives and Probiotic Immobilized Cells

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Abstract

Nowadays, there is a growing interest in developing novel functional foods containing probiotic microorganisms. Probiotics are defined as 'live microorganisms which, when administered in adequate amounts, confer a health benefit on the host'.To induce the health effects, probiotic products should contain an adequate amount of live bacteria (at least 10^6 cfu/g of product at the time of consumption), according to IPA Europe recommendations. At the same time, consumers' demand for healthier products lead to the necessity for replacing artificial food additives with bioactive,efficient and reduced toxicity natural antimicrobial agents. Considering that the production of new wines containing bioactive agents and probiotic cultures is expected to broaden consumers' choices for probiotic food products which are mainly restricted to dairies, the aim of the present study was to assess low alcohol (<7% vol) wine production containing citrus and/or cinnamon essential oils as biopreservatives and immobilized L. casei ATCC 393 cells on apple or pear pieces. Probiotic cell viability was monitored through microbiological and strain specific multiplex PCR analysis. The results showed that probiotic cell counts were encountered at levels > 6 log cfu/g even 3 hours after insertion into wines.Noticeably, all products were accepted by the sensory panel during the preliminary organoleptic evaluation and their excellent quality attributes were ascertained.

Keywords: Immobilization, probiotics, natural immobilization supports, biopreservatives

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