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Identification of specific spoiling microorganisms isolated from blueberry juice and their inactivation effect by using a microchip pulsed electric field system

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Blueberry juice is a healthy and nutritious food that has become increasingly popular worldwide. However, little is known about the microbial groups of this juice that can cause its deterioration. This study aimed to identify the main spoilage microorganisms in blueberry juice and determine whether a microchip pulsed electric field (MPEF) can effectively inactivate them. We performed polymerase chain reaction (PCR) amplification, as well as 16S rDNA, 18S rDNA, internal transcribed spacer (ITS), and 26S rDNA gene sequence analyses, to identify spoilage microorganisms. In addition, the effects of MPEF on inactivating the microorganisms were evaluated in a continuous flow system. Nine strains belong to eight genera, including *Pantoea*, *Burkholderia*, *Pichia*, *Meyerozyma*, *Cryptococcus*, *Aureobasidium*, *Cladosporium*, and *Penicillium* were identified as spoilage microorganisms, and *Cryptococcus*, *Meyerozyma* and *Pichia* were specific spoilage organisms (SSO) owing to their rising trend and huge number. MPEF exhibited excellent inactivation effects on *Cryptococcus*, *Meyerozyma*, and *Pichia* of 5.93, 6.08, and 5.86 log₁₀ reductions, respectively, at 450 V. This research provides theoretical basis for the application of MPEF in improving the quality of blueberry juice.

Biography

Zhilin Gan is working at the Beijing Forestry University, China. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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