

BioMicroWorld2017 Conference

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Book of Abstracts

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Assessment of foodborne pathogens in fresh berries

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Fresh berries have become a popular functional food because of their remarkably high levels of antioxidant phytonutrients and health benefits. They are highly consumed fruits worldwide and the increasing consumption has led to the need for improved food safety in the berry fruit industry. Most fresh fruits are eaten raw or after minimal processing and, consequently, pathogen contamination can represent a serious health risk. This highlights the need for better understanding the risks associated with contaminated fresh fruits, in order to implement adequate preventative measures.

The objective of this work, enclosed in the general objective within the framework of the national project SafetyFruit, was to evaluate the microbiological quality of raw materials used in fruit processing by a Portuguese company. The results obtained will allow this company to set target microorganisms that must be controlled during processing.

In this context, several samples of strawberry, blueberry, raspberry and blackberry were analysed. Microorganisms were detected and/or enumerated according to standard ISO methodologies and subsequently identified by 16S rDNA sequencing. The parameters of food safety studied were *Escherichia coli*, *Salmonella* spp., *Listeria monocytogenes*, *Bacillus cereus*, sulphite-reducing clostridia and *Staphylococcus aureus*.

Results showed that none of the samples were positive for *L. monocytogenes*. However, some samples were positive for *Salmonella* spp., *E. coli*, *S. aureus* and sulphite-reducing clostridia. Hemolytic *B. cereus* were also detected, but only 17 samples (raspberry and strawberry) out of 113 presented counts higher than 2 log. The most common isolated microorganisms were identified as *Staphylococcus epidermidis*, *Staphylococcus warneri*, *Staphylococcus aureus*, *Staphylococcus capitis*, *Staphylococcus cohnii*, *Bacillus amyloliquefaciens* and *Bacillus cereus sensu lato* that comprises the followed species: *B. cereus*, *B. thuringiensis*, *B. mycoides*, *B. weihenstephanensis*, *B. wiedmannii* and *B. anthracis*. *Klebsiella pneumoniae*, *Salmonella enterica* and *E. coli* were also identified in the tested samples.

Keywords: berries; microbiological quality; target microorganisms;