

Detection of food-borne pathogens using randomly selected non-sequenced genomic DNA probes-based DNA microarray

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Detection of Food-borne pathogen is critical issue in public health and the food industries. Among various molecular diagnostic methods, DNA microarray technology was applied for pathogen detection. In this study, Three food-borne pathogens, Staphylococcus aureus, Salmonella enterica subsp. enterica serovar Typhimurium and Bacillus cereus, were targeted for the preparation of the DNA microarray probe, 51~56 DNA probes selected randomly from non-sequenced genomic DNA of each pathogen were prepared by using a set of restriction enzyme pairs. This proto-type DNA microarray chip was redesigned and successfully optimized by eliminating a few cross-hybridized probes. As a Positive result was determined when the average intensity of target region was over the $3SD +$ threshold intensity. This microarray chip was successfully proved to be the high throughput simultaneous detection chip for the detection of food-borne pathogens, without knowing the sequence information of the target bacteria.