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Conference Abstract (Poster)



Industrial and Manufacturing (Track)

USE OF A METALLOPROTEASE GENE (APRX) AS A MARKER TO IDENTIFY PSEUDOMONAS SP. CONTAMINATION IN A DAIRY PLANT

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Abstract:

To prevent bacterial deterioration of dairy products, a rapid test for detection of *Pseudomonas* sp. strains high in proteolytic activity in milk is useful. Protease digestion of milk can lead to clotting and gelation of milk casein. A conventional plate-counting procedure to detect psychrotrophic contamination in milk products is time-consuming and not useful to prevent food degradation. The *aprX* gene encoding an alkaline metalloprotease is considered the responsible agent for milk spoilage. PCR methods targeting for this sequence can accelerate the detection process. To identify *Pseudomonas* sp. isolates able to express and produce the *aprX* enzyme, 15 strains collected from a dairy plant were analyzed after culturing in specific *Pseudomonas* medium. DNA sequencing of 16S rDNA and *aprX* regions was performed, and two genus *Pseudomonas* sp. (*P. chlororaphis*, *P. panacis*, *P. japonica*, *P. fluorescens*) and *Stenotrophomonas maltophilia* were identified and isolated from four surfaces in the cheese-processing plant (refrigerated milk storage tank before and after cleaning, cheese-processing equipment, and cheese-making mold). This study revealed several *Pseudomonas* species able to colonize a dairy plant and with the potential to degrade and spoil food substances with a high protein content.

Keywords: *aprX* gene, *pseudomonas*, milk.

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