

Recently, we found that staphylococcal enterotoxin A (SEA)-producing *Staphylococcus aureus* strains produced SEA in raw milk with microbial contaminants at high temperatures like 40 °C only. Moreover, the concentration of SEA produced in raw milk gradually decreased after the peak. The reason(s) for SEA degradation in raw milk was studied in this study. Degradation of SEA spiked in raw milk was observed at 40 °C, but not at 25 °C. A *Pseudomonas aeruginosa* isolate from raw milk degraded SEA spiked in broth at 40 °C. A sample partially purified with a chromatographic method from culture supernatant of the isolate degraded SEA. Two main proteolytic bands were observed in the sample by zymographic analysis with casein. These results suggested that the SEA in raw milk might be degraded by a protease(s) produced by the *P. aeruginosa* isolate. This finding might be the first report on SEA degradation by a proteolytic enzyme(s) derived from *Pseudomonas* bacteria to our knowledge.

Staphylococcal enterotoxin A which is resistant to stresses was degraded in raw milk. Protease(s) of *Pseudomonas aeruginosa* in raw milk would degrade the toxin.

