

Title Microbiological Hazard Assessment for the Construction Gap System in Strawberry Farms in the Gyeongnam Province of Korea

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Abstract

The objectives of this study were the assessment of microbiological hazards and provision of the microbiological information for the introduction of Good Agricultural Practice (GAP) systems in strawberry farms located in the western Gyeongnam province of Korea. A total of 141 samples were collected from water, soil, protected houses, and package houses. These samples were examined for sanitary indication bacteria, such as aerobic plate count, coliforms, and *Escherichia coli*. Pathogenic bacteria were also investigated, such as *E. coli* 0157:H7, *Salmonella* spp., *Staphylococcus aureus* and *Listeria monocytogenes*. As a result of microbial assessment, a significant difference between hydroponic cultivated farms and soil cultivated farms was not found. APC in the 6 farms studied varied from $\leq 1.5 \log \text{CFU}/100 \text{ cm}^2$ to $\geq 7.0 \log \text{CFU}/\text{g}$. The isolation rate of coliform and *E. coli* were 78% and 19%, respectively. Specifically, over $4.5 \log \text{CFU}/\text{hand}$ of *E. coli* was observed on employees' hands from F farm. According to the results of pathogenic bacteria detection, only the soil of F farm was contaminated with *Salmonella* spp. *Staphylococcus aureus* was detected in 14% of the collected samples. *Staphylococcus aureus* especially was found frequently on hands. However, *E. coli* 0157:H7 and *L. monocytogenes* were not detected anywhere.