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Microbial quality of tilapia tank water for produce production

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The microbiological quality of the water is important since the waste water from tilapia production tank will be used for produce production. The USFDA Food Safety Modernization Act (FSMA) requirement of monitoring microbiological quality of produce irrigation water, *Escherichia coli* and coliforms were analyzed. The water effluents from tilapia fish tank and greenhouse were monitored twice a month. Since these vegetables, cucumbers and tomatoes, are used in ready-to-eat foods, there is a zero tolerance of *Salmonella* and *Listeria monocytogenes*. Therefore these two bacterial contents were examined. Membrane filtration and 3M Petrifilm® were used to isolate *E. coli* and coliform in water samples. *E. coli* and coliform were also isolated from soil in green house for growing produce using 3M Petrifilm and pour-plate methods. Enrichment protocol was used for *Salmonella* and *Listeria monocytogenes* detection for the cucumber and tomatoes. The population of *E. coli* from the effluent of tilapia tank in November, 2016 was higher, then it decreased and the average population is 68 CFU/mL. The population of coliform has the same trend as in *E. coli* and the average population is 1.2×10^3 CFU/mL. While the populations of *E. coli* and coliform from the effluent of greenhouse had the same trend and the population of *E. coli* and coliform were 17 CFU/mL and 3.0×10^2 CFU/mL, respectively. The populations of *E. coli* and coliform in the soil were 91 CFU/mL and 1.70×10^3 CFU/mL, respectively. For *Listeria monocytogenes* and *Salmonella* detection, one positive of *Listeria monocytogenes* in presumptive test in cucumber has been found. The acquired data can provide information as to whether further disinfection is needed before water is discharged into the environment.

Biography

He is awarded PhD in Food Science and Human Nutrition from University of Florida in the 1993. He holds a Master Degree (MSc) in Plant Pathology from National Chung-Hsing University, Taiwan in the 1981, followed by a Bachelor's Degree (BSc) in Plant pathology from National Chung-Hsing University, Taiwan 1978. He has extended his/her valuable service as a **Professor** in Poultry Science, Auburn University for 6 years and has been a recipient of many award and grants. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests as a **Professor** reflect in his wide range of publications in various national and international journals.

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