B307 Relationship between Biofilms in the Distribution System and Microbiological Quality of Tap Water

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Effect of biofilms in the distribution system on the microbiological quality of tap water was investigated using a biofilm formation pipe system for 12 weeks. Galvanized-iron coupons were inserted into the system as a substratum for biofilms. Heterotrophic plate count (HPC), two indicators (total coliforms and fecal streptococci) and two pathogenic bacteria (*Salmonella* and *Shigella*) were enumerated for detached biofilms as well as influent and effluent of the system. Bacterial isolates were identified by API kits and MIDI system. Effluent exhibited much higher HPC density than influent and biofilm showed the highest, which suggests the higher density in effluent should result from the detachment from biofilms. HPC patterns in R_2A media were similar to that in plate count agar (PCA) media. Presumptive pathogenic colonies were recovered higher in biofilm than in effluent and influent during the first two weeks, but thereafter this phenomenon disappeared. No pathogenic bacterium was found from the typical positive isolates. Most of them were identified as *Flavobacterium, Pseudomonas, Bordetella, or Alcaligenes* and some were belonged to Family Enterobacteriaceae, but some of which were opportunistic pathogens (Bergey's manual). Negative isolates also represented similar result. Typical positive colonies on fecal streptococci meida were identified as *Staphylococcus* sp. These results suggest that biofilm control in the distribution system is important in the management of microbiological quality of tap water.

B308 The Distribution of *mer* Gene from Fresh Water in Taeback Area

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The distribution of total *mer* gene was investigated by direct DNA extraction method and MPN-PCR(Most Probable Number-Polymerase Chain Reaction) from fresh waters in Taeback area. The water samples was estimated with temperature, pH, phosphate-P and ammonium-N. The temperature increased in order of March, June, August, but pH decreased. The concentration of phosphate-P and ammonium-N was estimated 10.4 PO_3-P ug/l(March), 264.9 NH_4-N ug/l(August), respectively. The acquired total DNA by direct DNA extraction was investigated to MPN-PCR with primers of conserved region of *mer* gene(*mer*RTΔP). The population of Hg^r bacteria was distributed in order of size as follows: March; site 2, 1, 3, June; site 1, 3, 2, August; site 3, 2, 1. The total mer gene was distributed in order of size as follows: March; site 1, 2, 3, June; site 1, 2, 3, August; site 2, 1, 3. It was different that the distribution of culturable Hg^r bacteria and of total *mer* gene . Also, it was supposed to exist non-culturable Hg^r bacteria containing *mer* gene.