

3936031 PHPH/ M : MAJOR : INFECTIOUS DISEASES ; M.Sc. (PUBLIC HEALTH)

KEY WORDS : WATER QUALITY/ ENVIRONMENTAL WATER/  
MEMBRANE FILTER TECHNIQUE

TIPAWAN SATIDWIPARAWONG : BACTERIOLOGICAL QUALITY IN ENVIRONMENTAL WATER SAMPLES OF ONE HOSPITAL AT CHANTABURI PROVINCE. THESIS ADVISOR: UNCHALEE TANSUPHASIRI, M.S. (Microbiology), ANGSANA BOONTHUM, M.Sc., GUNYA ROONGRATANAU BON, B.Sc. 140 p. ISBN 974-661-403-7.

This study was intended to investigate the microbiological quality in 220 environmental water samples of one hospital in Chantaburi Province during June-September, 1997. Membrane Filter technique was employed to determine the contamination of water by indicator and pathogenic bacteria. The results showed that most of the samples from water supplies in the hospital (mixed water) were under the quality standard criterion. It was found that 60%, 43.3%, and 4.2% of the samples were contaminated with heterotrophic bacteria, total coliforms, and fecal streptococci respectively. Eleven point seven percent of the samples were contaminated with pathogenic bacteria, *Pseudomonas aeruginosa*.

The statistical analysis revealed that there was no statistically significant difference ( $P>0.05$ ) between mixed water and municipal water concerning contamination with heterotrophic bacteria, fecal coliform, fecal streptococci and *P. aeruginosa*, however, there was a significant difference ( $P<0.05$ ) concerning contamination with total coliform. Tap water from wards supplied with mixed water was contaminated with heterotrophic bacteria and *P. aeruginosa* more than that from wards supplied with municipal water at  $P<0.05$  and  $P<0.05$  respectively. Filtered water from wards supplied with mixed water was also contaminated with heterotrophic bacteria more than that from wards supplied with municipal water at  $P<0.05$ . There was no significant difference at  $P>0.05$  in contamination of drinking water in patients' containers with indicator bacteria and pathogenic bacteria between mixed and municipal water wards. The origin of the indicator and pathogenic bacteria contamination was found to be pond water. Municipal water from the district supply was of good quality and met WHO microbiological standard criterion. Wastewater effluent was contaminated with indicator bacteria fewer than wastewater influent at  $P<0.05$  and wastewater effluent met microbiological standard criterion. The results give an indication of the quality of water in this hospital. The results can be used as the basis for developing guidelines for the improvement of water quality. This is important due to possible health risks and the possibility of nosocomial infection from unclean water.