

**ANALISIS METODE PENERAPAN SISTEM UJI KUALITAS AIR DI
NATIONAL LABORATORY ANIMAL CENTER (NLAC), MAHIDOL
UNIVERSITY, THAILAND**

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ABSTRAK

National Laboratory Animal Center (NLAC) adalah laboratorium yang bergerak di bidang pengembangbiakan dan penelitian menggunakan hewan coba. Perawatan hewan laboratorium dilakukan untuk menjaga hasil penelitian agar tidak bias pada saat proses diagnosa. Tujuan dari penulisan tugas akhir ini adalah untuk mengetahui kualitas air yang digunakan oleh *National Laboratory Animal Center (NLAC)*, Mahidol University, Thailand dengan pengecekan berkala menggunakan media *aerobic plate count (APC)*, *media-heterotofik plate count (M-HPC)*, *media-pseudomonas aeruginosa count (M-PAC)*. Pengelolaan air minum hewan coba di NLAC menggunakan metode penyaringan air dengan membran *reverse osmosis*. Proses *reverse osmosis* dilakukan dengan tiga tangki penyaringan yaitu: *water softener*, *carbon filter*, dan *sand filter*. Penambahan klorin dilakukan setelah air *reverse osmosis* terbentuk. Pengecekan kadar klorin dilakukan dengan reagen N,N-dietil-p-fenilendiamin (DPD) *free chlorine* dan N,N-dietil-p-fenilendiamin (DPD) *total chlorine* dengan bantuan alat *pocket colorimeter*. Pengujian mikrobiologi dilakukan dengan metode *aerobic plate count (APC)* dan dengan membran filtrasi *media-pseudomonas aeruginosa count (M-PAC)* dan *media-heterotofik plate count (M-HPC)*. Hasil pengujian kadar klorin pada ruang tikus didapatkan kandungan *free chlorine* 5,5 ppm dan *total chlorine* 5,9 ppm, ruang marmut didapatkan *free chlorine* 5,6 ppm dan *total chlorine* 5,8 ppm, ruang mencit didapatkan *free chlorine* 5,7 ppm dan *total chlorine* 5,9 ppm, ruang kelinci didapatkan *free chlorine* 5,6 ppm dan *total chlorine* 5,8 ppm dengan kriteria 5-7 ppm. Hasil pengujian mikrobiologi dengan metode APC didapatkan tidak ada pertumbuhan bakteri, M-HPC didapatkan tidak ada pertumbuhan bakteri heterotrofik, dan M-PAC didapatkan tidak ada pertumbuhan bakteri *Pseudomonas aeruginosa*. Berdasarkan pengujian pada tugas akhir ini disimpulkan bahwa air minum yang digunakan oleh hewan coba di *National Laboratory Animal Center (NLAC)* berdasarkan standar internasional di Thailand telah memenuhi kriteria, sesuai dengan *Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International)* dan *International Council for Laboratory Animal Science (ICLAS)*.

Kata kunci : Pengelolaan Air Minum, *Reverse Osmosis*, APC, M-PAC, M-HPC

AN ANALYSIS OF METHODS FOR APPLYING THE WATER QUALITY TEST SYSTEM IN NATIONAL LABORATORY ANIMAL CENTER (NLAC), MAHIDOL UNIVERSITY, THAILAND

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ABSTRACT

National Laboratory Animal Center (NLAC) is a laboratory engaged in the field of breeding and research using experimental animals. Laboratory animal care is carried out to maintain the results of the study so that it is not biased during the diagnosis process. The purpose of this final paper is to determine the quality of water used by the National Laboratory Animal Center (NLAC), Mahidol University, Thailand with periodic checks using aerobic plate count (APC), media-heterotrophic plate count (M-HPC), media-pseudomonas aeruginosa count (M-PAC). The management of experimental drinking water in NLAC uses a water filtration method with a reverse osmosis membrane. The reverse osmosis process is carried out with three filtering tanks, namely: water softener, carbon filter, and sand filter. Addition of chlorine is carried out after reverse osmosis water is formed. Chlorine content was checked by N reagents, N-diethyl-p-phenylenediamine (DPD) free chlorine and N, N-diethyl-p-phenylenediamine (DPD) total chlorine with the help of pocket colorimeter devices. Microbiological testing was carried out by aerobic plate count (APC) and membrane filtration media-pseudomonas aeruginosa count (M-PAC) and media-heterotrophic plate count (M-HPC). The results of testing chlorine levels in the rat room found 5.5 ppm free chlorine and 5.9 ppm total chlorine, the guinea pig room was 5.6 ppm free chlorine and 5.8 ppm total chlorine, the mice room found 5.7 ppm free chlorine and total chlorine is 5.9 ppm, rabbit room is 5.6 ppm free chlorine and 5.8 ppm total chlorine with criteria of 5-7 ppm. The results of microbiological test using the APC method showed no bacterial growth, M-HPC found no heterotrophic bacterial growth, and M-PAC found no growth of *Pseudomonas aeruginosa*. Based on testing in this final paper, it was concluded that drinking water used by experimental animals at the National Laboratory Animal Center (NLAC) based on international standards in Thailand had met the criteria, in accordance with the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International) and International Council for Laboratory Animal Science (ICLAS).

Keyword : Management of Dinking Water, Reverse Osmosis, APC, M-PAC, M-HPC