

Chutinun Khongsarin 2014: Antimicrobial Activity of Thai Medicinal Plant Extracts Against *Pseudomonas aeruginosa* Isolated from Drinking Water. Master of Science (Microbiology), Major Field: Microbiology, Department of Microbiology. Thesis Advisor: Associate Professor, Patcharee Sunthornandh, Ph.D. 97 pages.

The isolation and detection of *Pseudomonas aeruginosa* were carried out from 300 samples of drinking water. All samples were collected from various places in Bangkok and Nonthaburi areas every two months for one year. *Pseudomonas* were obtained from 113 drinking water samples (37.5 %) and 115 isolates were detected. All isolates were confirmed with selective medium and biochemical test. Drug sensitivity test was determined by using 10 antibiotics such as amikacin, carbenicillin, chloramphenicol, erythromycin, gentamicin, kanamycin, piperacillin, streptomycin, polymyxin B and tetracycline. The result revealed that 5 representative of isolated *Pseudomonas* were sensitive to chloramphenicol, carbenicillin, gentamicin, kanamycin, and piperacillin and were resistant to amikacin, erythromycin, streptomycin, polymyxin B, and tetracycline. Eight Thai medicinal plants; Kariyat (*Andrographis paniculata*), Asiatic Pennywort (*Centella asiatica*), Turmeric (*Curcuma longa*), Zedoary (*Curcuma zedoaria*), Lemongrass (*Cymbopogon citrates*), Roselle (*Hibiscus sabdariffa*), Noni (*Morinda citrifolia*) and Phai (*Zingiber montanum*) were used for screening the antimicrobial activity against the 5 representative of isolated *Pseudomonas*. Hexane, 95% alcohol and hot water were used as the solvent for extraction of Thai medicinal plants and screening test of the crude extracts was done by agar well diffusion method. The crude extracts of Asiatic Pennywort and Noni with 95% alcohol showed the antimicrobial activity against all 5 representative of isolated *Pseudomonas* which inhibition zone was about 13.0 -15.2 mm., MIC was 512 mg/ml of both medicinal plants, MBC of crude extracts from Asiatic Pennywort and Noni were 512 mg/ml and 1024 mg/ml, respectively. The crude extracts of Kariyat with 95% alcohol and hot water showed the antimicrobial activity against all 5 representative of isolated *Pseudomonas* which inhibition zone was about 13.7-15.2 mm. and 20.1-22.5 mm. respectively. The MIC and MBC were determined and the result of the crude extracts from Kariyat with hot water were 256 mg/ml and 512 mg/ml, respectively. The MIC and MBC of the crude extracts from Kariyat with 95% alcohol were 512 mg/ml and 512 mg/ml, respectively. And the crude extracts from Roselle were showed inhibition zone about 20.5-23.5 mm. and the MIC and MBC were 256 mg/ml and 512 mg/ml, respectively. From these results, it might be concluded that some Thai medicinal plants especially Roselle and Kariyat should be used as drug of choice to inhibit *Pseudomonas aeruginosa* which caused many kinds of disease in human.

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Student's signature

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Thesis Advisor's signature