Thesis Title	The Development of the Extracts from Galanga and Pomegranate as Disinfectants.
Name	Surha Sempool
Degree	Master of science (Pharmacy)
Thesis Supervisory Committee	
	Malyn Chulasiri, Ph.D.
	Mansuang Wuti-udomlert, M.Sc.
	Punya Temcharoen, M.Sc.
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Abstracts

In the present study, the water extract from pomegranate and alcoholic extracts from galanga and pomegranate had the antimicrobial activity, while the water extract from galanga had not. In consideration of influencing factors, pH and filtration treated had no effect upon such activity, however temperature, heat and organic matter had some effects especially upon the antimicrobial activity of the alcoholic extract from galanga. Bacause the alcoholic extracts from galanga and pomegranate showed the promising antifungal and antibacterial activities, respectively, these two extracts were carried out for further study. In toxicity test, the alcoholic extract from galanga was not toxic to mice and rat (LD_{50} > 4g/kg) while the alcoholic extract from pomegranate showed little toxicity to mice (LD_{50} < 4 mg/kg

but > 2 mg/kg) but not to rat. These extracts, however, gave rise no mutagenic potential towards B.subtilis H17 and M45 (tested by rec-assay), S.typhimurium TM677 (tested by forward mutation assay) and S.typhimurium TA98 and TA100 either in the presence or absence of S9 mix (tested by Ames assaay). In irritation study, the alcoholic extract from galanga exhibited erythema up until 48 hours, while the extract from pomegranate did not.

When the alcoholic extracts from galanga , pomegranate and the combination between the alcoholic extract from galanga and pomegranate were formulated as disinfectants, they still showed antimicrobial activity and MBC (Minimal Bactericidal Concentration) of these herbal disinfectants were 0.1-5%, 0.1-1% and 0.1-1%, respectively, to 10 tester bacteria. Killing time as shown at 5% disinfectant solution from galanga, pomegranate and combination were within 5 minutes to more than 24 hours, within 30 minutes and within 5 minutes to 4 hours, respectively. For the study on stability of herbal disinfectants, only galanga disinfectant showed instable antimicrobial activity after keeping at 50 °C for 1 month. In consideration of disinfection time and width of zone size to response clinical isolates of bacteria and fungi, galanga disinfectant, however, revealed good activity against fungi, while pomegranate disinfectant was found to be good against bacteria. On the contrary, the combination disinfectant exhibited

promising activity against both clinical isolates of bacteria and fungi. Pomegranate and combination disinfectants could disinfect > 50% of bacteria and candidas within 15 minutes and > 80% within 4 hours while shown by galanga disinfectant was >24 hour for most bacteria. The mean ± SD of clear zones exhibited by galanga and combination disinfectant against fungi were 25.7 ±11.6 and 17.2 ± 10.7 mm, respectively , whereas exhibited by pomegranate disinfectant were 11.3 ± 6.1 mm.