3936422 PYPP/M : MAJOR : PHARMACEUTICAL CHEMISTRY AND PHYTOCHEMISTRY ; M.Sc. (PHARMACEUTICAL CHEMISTRY AND PHYTOCHEMISTRY)
KEY WORDS : ANTHRAQUINONE / CASSIA/ ISOZYME / DENSITOMETER /ELECTROPHORESIS / SPECTROPHOTOMETER

SOMSAK NUALKAEW: COMPARISON OF ANTHRAQUINONE CONTENT AND ZYMOGRAM PATTERNS OF ISOZYMES IN *CASSIA* SPECIES. THESIS ADVISORS : WANDEE GRITSANAPAN, Ph.D., OMBOON LUANRATANA, Ph.D., SAWANEE SURIYAPANANONT, Ph.D. 129 P. ISBN 974-662-642-6

Anthraquinone compounds are used as laxatives and in the treatment of skin diseases. They have been found in many plants including *Cassia*. The comparison of content of total anthraquinones, total anthraquinone glycosides and major anthraquinones was done in four *Cassia* species collected from 4 regions of Thailand: *C. siamea* Lamk., *C. fistula* Linn., *C. alata* Linn. and *C. surattensis* Burm.f. subsp. *surattensis*. A UV-vis spectrophotometer was used for the analysis of total anthraquinones and total anthraquinone glycosides while a TLC densitometer was used to determine the content of major anthraquinone present in the samples. The study showed that species of plants, locations and seasons significantly affected ($p<0.001$) the amount of anthraquinones. The highest percentage of total anthraquinone content was found in *C. alata* (1.33%), followed by *C. fistula* pod (0.6%) and leaves (0.57%), *C. siamea* (0.12%) and *C. surattensis* (0.04%). Only *C. alata* and *C. fistula* are appropriate for use as the sources of anthraquinone containing drugs. The seasons during which *C. alata* samples collected from northern, northeastern, central and southern parts contained highest total anthraquinones were summer, rainy, summer and winter, respectively. The seasons during which *C. fistula* collected from the same locations as *C. alata* gave the best anthraquinone yield were summer, rainy, winter and summer, respectively. The study of zymograms of 4 enzymes, i.e. esterase (EST), phosphogluconate dehydrogenase (PGD), shikimate dehydrogenase (SKD) and alcohol dehydrogenase (ADH) by vertical polyacrylamide gel electrophoresis was also done. It was found that some zymogram patterns could be used for classifying different varieties of each *Cassia* specie. The largest number of phenotypic zymogram was found in EST of all 4 *Cassia* species. ADH and PGD zymograms of *C. alata* and *C. fistula* collected from 4 areas showed no difference. Moreover, this study has provided fundamental isozyme patterns to be used as preliminary genetic markers for each *Cassia* specie studied.