

3936686 PYBS/M : MAJOR : BIOPHARMACEUTICAL SCIENCES;
M.Sc. (BIOPHARMACEUTICAL SCIENCES)
KEY WORDS : HIV-1/ REVERSE TRANSCRIPTASE/ INHIBITOR/ THAI
MEDICINAL PLANT

SUTTHILAK QUANTRAIKAT : HUMAN IMMUNODEFICIENCY VIRUS
TYPE-1 REVERSE TRANSCRIPTASE INHIBITOR OF SOME THAI
MEDICINAL PLANTS. THESIS ADVISORS: CHANPEN WIWAT, Ph.D.,
WEENA JIRATCHARIYAKUL, Dr. rer. nat. 139 p. ISBN 974-663-252-3

The purpose of this study was to screen traditional Thai medicinal plants for anti-human immunodeficiency virus type-1 reverse transcriptase (HIV-1 RT). Water and 80% ethanol extracts of 22 Thai medicinal plants were tested for their inhibitory effects on the HIV-1 RT by *in vitro* radiometric method. The results showed that eleven water extracts and seven ethanol extracts exhibited the anti-HIV-1 RT activities. Potent HIV-1 RT inhibitory actions were obtained from the water extract of *Jatropha curcas* L. stem barks, water extract of *Elephantopus scaber* L. leaves and roots, and ethanol extract of *Securinega virosa* Baill. branches and leaves. They exhibited a percentage of inhibition ratio (%IR) at 97.5, 96.93, and 88.2, respectively. Positive tannin reaction was found from the extracts of *J. curcas* and *S. virosa*, but not found from *E. scaber* extract. Therefore, the water extract of *E. scaber* was selected for further study. The water extract of *E. scaber* was fractionated with ammonium sulfate at 30%, 30-60%, and 60-80% saturation. The proteins were separated by sodium dodecyl sulfate acrylamide gel electrophoresis. The interesting protein band was cut-off, eluted, and assayed for the anti-HIV-1 RT activity. Its IC_{50} was approximately 4.29 $\mu\text{g/ml}$. The molecular weight of the protein was found to be 34.5 kDa. Its isoelectric point (pI) was 4.65 and the amino acid sequence at the N-terminus read Alanine-Alanine-Alanine-Glutamine-Proline-Phenylalanine-Glycine-Asparagine. These findings suggest that some medicinal plants have an inhibitory effect on HIV-1 RT. The results of this study can assist further research.