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KEY WORDS : *MOMORDICA CHARANTIA L.*/ PROTEINS/ ANTI-HIV/  
ANTI-TUMOR/ TOPOISOMERASE II/ CYTOTOXICITY

THITIDAJ LUETRAKUL : ISOLATION AND CHARACTERIZATION OF  
BIOLOGICALLY ACTIVE 30 kDa PROTEINS FROM THE SEED OF  
*MOMORDICA CHARANTIA L.* CULTIVATED IN THAILAND. THESIS  
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*Momordica charantia L.* was reported to be an important source for anti-HIV proteins. At least three anti-HIV proteins were identified in *Momordica charantia L.* including MAP30,  $\alpha$ - and  $\beta$ -momorcharins. These anti-HIV proteins were expected to improve life quality of AIDS patients. The purpose of this research was to extract and isolate anti-HIV proteins from the seeds of *Momordica charantia L.*, Mara Khee Nok and local long Chinese bitter melon, cultivated in Thailand. The physical and biological activities of the proteins were also determined. The crude extract, dialyzed 0-30 % and 30-60 % precipitated proteins from both plants showed 30 kDa as major proteins. Two kinds of proteins of molecular weight around 30 kDa and pI approximately 9-10 were found from both plants. The N-terminal amino acid sequence analysis showed sequences of DVSEFRLSGADPRSYGMFIKD, and DVNFDLSTATAKTYTKFIE(D), which were identical to momordin a (28.6 kDa) and  $\alpha$ -momorcharin (29 kDa), and MAP30 (30 kDa) and  $\beta$ -momorcharin (29 kDa), respectively. The topoisomerase II activity seen in crude extract and dialyzed 30-60 % precipitated proteins from both plants was confirmed with the etoposide, a specific topoisomerase II inhibitor. The dialyzed 0-30 % and 30-60 % fractions of both plants possessed anti-HIV activity at 1.75 and 0.175  $\mu$ g/ml, respectively. Anti-tumor activity was also exhibited by dialyzed 30-60 % fractions of both species. The cytotoxicity of crude extract from both were significantly higher than dialyzed 30-60 % precipitated fraction. Nevertheless, the authentic biological activity of the isolated homogeneous proteins from both plant species needs to be further studied.