

CHAPTER V

CONCLUSION

2-Propylpentamide has been known to possess good anticonvulsant activity. In addition, at the Faculty of Pharmaceutical Science, Chulalongkorn University, some N-substituted-2-propylpentamide derivatives have also been synthesized and evaluated for their anticonvulsant activity favorable compared to valproic acid. In order to further explore the structure modification of this compound, focus has been on the variation of N substitution having H-bond donating or accepting group at α or β position to the amide nitrogen since the N-(2-propylpentanoyl) derivatives of some amino acids, γ -pentanohydroxamic acid derivatives, and functionalized amino acids have been reported to possess potent anticonvulsant activity. Pathways of synthesis are as follows:

- I. The synthetic route of N-(2-propylpentanoyl) derivatives of amino acid included
 - Converting of 2-propylpentanoic acid to 2-propylpentanoyl chloride by the use of thionyl chloride.
 - N-acylation of amino acid with the acyl chloride in aqueous base.
 - Synthesis of N-(2-propylpentanoyl)-DL-serine involved basic hydrolysis of the corresponding methyl ester.

- II. The synthetic route of N-(2-propylpentanoyl) derivatives of amino acid ester included
 - Converting of 2-propylpentanoic acid to 2-propylpentanoyl chloride by the use of thionyl chloride.

- Esterification of amino acid to amino acid ester hydrochloride.
 - N-acylation of amino acid ester with the acyl chloride.
- III. The synthetic route of N-(2-propylpentanoyl) derivatives of amino acid benzylamide included coupling of N-(2-propylpentanoyl) derivative of amino acid with benzylamine using N,N'-dicyclohexylcarbodiimide as a coupling reagent.
- IV. The synthetic route of N-hydroxymethyl-2-propylpentamide included
- Chlorination of 2-propylpentanoic acid by thionyl chloride to obtain its acyl chloride.
 - Amidation of 2-propylpentanoyl chloride to 2-propylpentamide using concentrated ammonia solution.
 - Addition of the amide to formaldehyde in the presence of potassium carbonate.
- V. The synthetic route of N-acyloxymethyl-2-propylpentamide included the acetylation of N-hydroxymethyl-2-propylpentamide with acetic anhydride in the presence of pyridine.
- VI. The synthetic route of N-methoxymethyl-2-propylpentamide included N-alkylation of N-2-propylpentamide with methoxymethyl chloride using sodium hydride as a base.

The structures of all compounds were identified by infrared spectroscopy, proton-1 and carbon-13 nuclear magnetic resonance spectrometry, mass spectrometry, and elemental analysis techniques.