CHAPTER V

CONCLUSION

O-alkyl or *O*-acyl derivatives of 2-propylpentanohydroxamic acid were synthesized with the expectation that these compounds would represent to novel imidooxy liked anticonvulsants.

The synthesis of these derivatives could be divided into two mainly parts:

I. The synthetic route of *O*-alkyl-2-propylpentanohydroxamate proceeded through 3 steps:

1. Chlorination of 2-propylpentanoic acid by using thionyl chloride as a chlorinating agent, to obtain 2-propylpentanoyl chloride.
2. 2-Propylpentanoyl chloride was reacted to hydroxyl amine to form2-propylpentanohydroxamic acid.
3. Alkylation of 2-propylpentanohydroxamic acid by using alkyl halides or alkyl sulfate, including ethyl chloroacetate, dimethyl sulfate, ethyl iodide, propyl bromide, benzyl chloride, and α-bromo-2-chloro toluene, in the presence of sodium hydroxide solution and heat under reflux to obtain *O*-alkyl-2-propylpentanohydroxamates.

II. The synthetic route of *O*-acyl-2-propylpentanohydroxamate proceeded through 4 steps:

1. Chlorination of 2-propylpentanoic acid by using thionyl chloride as a chlorinating agent, to obtain 2-propylpentanoyl chloride.
2. 2-Propylpentanoyl chloride was reacted to hydroxyl amine to form2-propylpentanohydroxamic acid.
3. 2-Propylpentanohydroxamic acid was converted to sodium 2-propylpentanohydroxamate by using sodium ethoxide.

4. Acylation of sodium 2-propylpentanohydroxamate by using acyl halides or acid anhydride, including ethyl chloroformate, acetic anhydride, benzoyl chloride, and 4-nitrobenzoyl chloride, at 0-10 °C to obtain *O*-acyl-2-propylpentanohydroxamates. Exceptionally, the compound, 2-propylpentanohydroxamic 4-aminobenzoic anhydride, was synthesized from reduction by catalytic hydrogenation of 2-propyl pentanohydroxamic 4-nitrobenzoic anhydride using palladium carbon on activated charcoal as a catalyst.

Because all *O*-acyl-2-propylpentanohydroxamate were decomposable compounds. In the presence of base, sodium hydroxide, or heat in the reaction, they were easily rearranged to form *N,N'*-di(1-propylbutyl)urea as a major product. So, to prevent the formation of *N,N'*-di(1-propylbutyl)urea, the 2-propylpentanohydroxamic acid was firstly converted to sodium 2-propylpentanohydroxamate. Subsequently, the salt was acylated by acyl halides or acid anhydride.

In these synthetic pathways of *O*-alkyl or *O*-acyl-2-propyl pentanohydroxamate, the satisfactorily yield of final product were obtained.