CHAPTER V

CONCLUSION

N-(*p*-Aminobenzoyl)-1,2,3,4-tetrahydro-4,8-dimethylquinoline was synthesized by the expectation that this compound will have potential anticonvulsant activity.

The synthetic route of N-(*p*-Aminobenzoyl)-1,2,3,4-tetrahydro-4,8-dimethylquinoline proceeded through 9 steps:

1. Condensation of benzoyl chloride and tetrahydrofuran, using zinc chloride as a catalyst, to form 4-Chlorobutyl benzoate.
2. Alkylation of *o*-toluidine by 4-Chlorobutyl benzoate to form 4-[N-(*o*-Toluidino)]butyl benzoate hydrochloride salt.
3. Neutralization and hydrolysis of 4-[N-(*o*-Toluidino)]butyl benzoate hydrochloride salt to obtain 4-[N-(*o*-Toluidino)]butanol.
4. Formylation of 4-[N-(*o*-Toluidino)]butanol by formic acid to yield N-(4-Hydroxybutyl)-N-(*o*-tolyl)formamide.
5. Chlorination of N-(4-Hydroxybutyl)-N-(*o*-tolyl)formamide, by the use of thionyl chloride as a chlorinating agent, to obtain N-(4-Chlorobutyl)-N-(*o*-tolyl)formamide.

6. Friedel-Crafts alkylation to cyclize N-(4-Chlorobutyl)-N-(*o*-tolyl)formamide intramolecularly in order to form N-Formyl-1,2,3,4-tetrahydro-4,8-dimethylquinoline.

7. Hydrolysis of N-Formyl-1,2,3,4-tetrahydro-4,8-dimethyl quinoline to yield the corresponding amine, 1,2,3,4-Tetrahydro-4,8-dimethylquinoline.

8. Acylation of 1,2,3,4-Tetrahydro-4,8-dimethylquinoline by *p*-nitrobenzoyl chloride to obtain N-(*p*-Nitrobenzoyl)-1,2,3,4-tetrahydro-4,8-dimethylquinoline.

9. Reduction by catalytic hydrogenation of N-(*p*-Nitrobenzoyl)-1,2,3,4-tetrahydro-4,8-dimethylquinoline, using palladium on activated charcoal as a catalyst, to acquire the final product, N-(*p*-Aminobenzoyl)-1,2,3,4-tetrahydro-4,8-dimethylquinoline.

Because the synthetic pathway of the required product proceeded via many steps, the overall yield was considered to be miniscule.

The final product is a racemic mixture, having a chiral center at carbon, position 4. However, the two enantiomers cannot be discriminated by NMR spectroscopic techniques. In addition, each enantiomer possesses many conformers, due to the inversion of non-aromatic heteronuclear ring and the rotation around the C(=O)-N partial double bond, which can be detected by many NMR experiments.

In conclusion, the configurations and conformations of this compound could surely affect its activity as anticonvulsant. This study can reveal the interesting views of the further resolution of the racemic mixture and the

additional conformational analyses that may lead to the discovery of the active conformer which will be beneficially used to design a new lead compound.