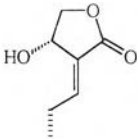
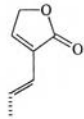
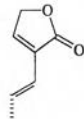
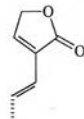
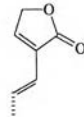
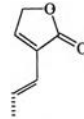
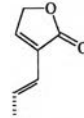
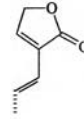
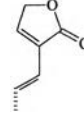


CHAPTER V

CONCLUSION

1. Two compounds were isolated from ethanol extract of *Andrographis paniculata* Nees. They are Andrographolide(4) and 14-deoxy-11,12-didehydroandrographolide(6).
2. Two methods of esterification have been performed, one by refluxing and another one at room temperature with acid anhydride (acetic anhydride, butyric anhydride) and acid chloride (benzoyl chloride, heptanoyl chloride and stearoyl chloride).
3. It was found that the products of the reaction in all cases were mono- and di-acyl derivatives of dehydroandrographolide.
4. Heat under reflux gave mono- and di-acyl derivatives of dehydroandrographolide, but at room temperature gave only di-acyl derivatives of dehydroandrographolide.
5. Seven related diterpene lactone synthesized compounds in this experiment were obtained and their structures were elucidated by spectroscopic methods and were shown in figure 76.
 - 14-deoxy-11,12-didehydroandrographolide diacetate (A1&A2)
 - 14-deoxy-11,12-didehydroandrographolide dibutyrate (A3&A5)
 - 14-deoxy-11,12-didehydroandrographolide monobutyrate (A4)
 - 14-deoxy-11,12-didehydroandrographolide dibenzoate (A6&A8)
 - 14-deoxy-11,12-didehydroandrographolide monobenzoate (A7)
 - 14-deoxy-11,12-didehydroandrographolide diheptanoate (A9&A10)
 - 14-deoxy-11,12-didehydroandrographolide distearoate (A11&A12)

Figure 76. Summary of the structures of Andrographolide(4)Dehydroandrographolide (6) and Seven related diterpene lactone synthesized compounds.

compound	X	R ₁	R ₂
4		H	OH
6		H	OH
A1&A2		COCH ₃	OCOCH ₃
A3&A5		CO(CH ₂) ₂ CH ₃	OCO(CH ₂) ₂ CH ₃
A4		CO(CH ₂) ₂ CH ₃	OH
A6&A8		COC ₆ H ₅	OCOC ₆ H ₅
A7		COC ₆ H ₅	OH
A9&A10		CO(CH ₂) ₅ CH ₃	OCO(CH ₂) ₅ CH ₃
A11&A12		CO(CH ₂) ₁₆ CH ₃	OCO(CH ₂) ₁₆ CH ₃

