



# Application of Dieckmann Condensation to Pyrrole Diesters

## Organic Chemistry

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### Introduction

- The Dieckmann condensation is commonly used in preparation of cyclic indole
- The heterocyclic indole can be biologically active against cancer
- The application of the Dieckmann condensation to make five-membered pyrroles was attempted using Lewis Acids as coordinators
- The modified Dieckmann condensation has never been published, making its procedure novel

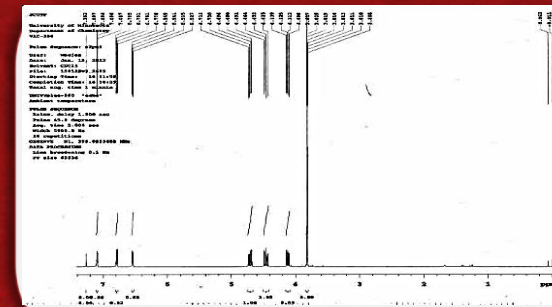
### Results

#	Equivalence (v/w) of Et <sub>3</sub> N to (2)	Equivalence (v/w) of AlCl <sub>3</sub> to (2)	Time (day s)	Reaction Process <sup>a</sup>
A	1.4	1.4	2	Incomplete
B	2.3	3.4	1	Incomplete
C	3	3	3	Incomplete
D	3.4	3.4	3	Complete

Table 1: Synthesis of (3) using AlCl<sub>3</sub> and Et<sub>3</sub>N with difference equivalences

<sup>a</sup> based on GC-Mass and proton NMR

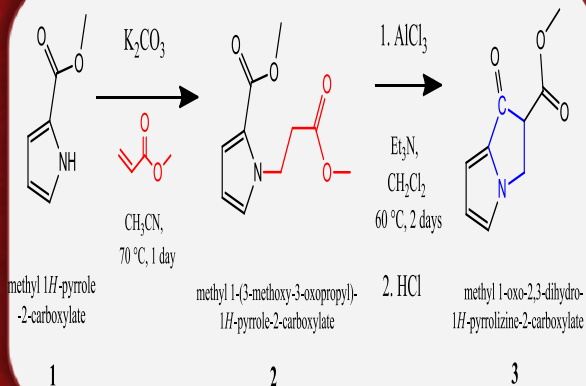
### NMR data of 3



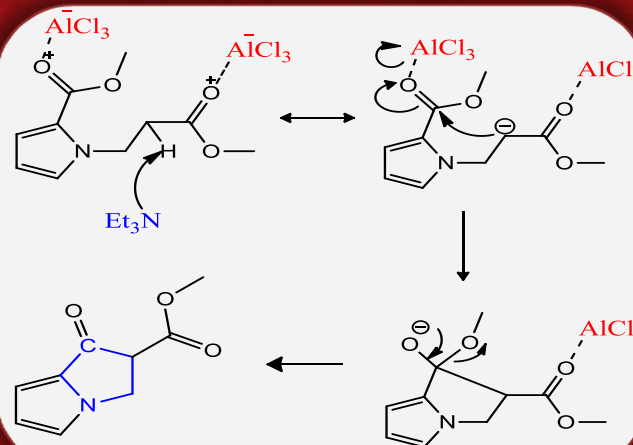
### Conclusions

- Using extra equivalents of AlCl<sub>3</sub> and Et<sub>3</sub>N allowed for the successful synthesis of 3
- Whether another choice of Lewis acids may also succeed the reaction remains to be discovered.

### Scheme: Synthesis of 2, 3



### Mechanism: Synthesis of 3



### References

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