A Novel Method of Pyrrolidine Synthesis

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Expression ions, THPS and lactones
Espuleronium Ions and the Evans-Mislow Rearrangement

D. House et al., Chem. Commun., 2000, 1781
J. Frame and S. Water, unpublished work

Espuleronium Ions and THF - Kinetic Methods

I. Caggiano

154% 854% 

196% 744% 

974% 694%

Pyrroldines
Pyrroolidines


| 88 | 0 | 94 |
| 30 | 4 | 3 |
| 14 | 7 | 2 |
| 0  | 9 < 95 | H |

(% Allylic Sulfide Yield, % Pyrrolidine Yield, % H-Group)

Pyrroolidines
E-Enolate

Z-Enolate

Tandem Procedure

Aldol Chemistry


Davies style Michael additions of lithium C-methylbenzyl amides proceed with high diastereoselectivity.

Disconnection
Pyruvylamine Synthesis

S. G. Davies et al., Chem. Commun., 2000, 337

Dehydration (J. P. Cenzer)

Mono-deprotection by tert ammomium nitrate (CAN) (S. G. Davies)
**Mechanism**
This is consistent with internal general base catalysis, which effects only the rate of carbanion formation.

There is a kinetic isotope effect for the formation of imidazole, of \( k^A / k^D = 2 \).

**Mechanism**

Structural Modifications

Chemical Structures

- Reagents:
  - No Reagents
  - DCC
  - DMAP

- Reactions:
  - 1:2:1
  - 3:2:1
Episollium Ion X-Ray Structures

C-S bond lengths in X-ray structures of Episollium ions ≈ 1.9 Å

<table>
<thead>
<tr>
<th>C-O Bond / Å</th>
<th>C-S Bond / Å</th>
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<tbody>
<tr>
<td>1.437</td>
<td>2.746</td>
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<tr>
<td>2.472</td>
<td>2.129</td>
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<td>2.737</td>
<td>2.029</td>
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</tbody>
</table>

1.0, 2.0 Sulfate material
2.0, 1.0 Sulfate
1.0, 2.0 Sulfate

Molecular Model
A. Tosimizu, C. Hirasawa, K. Tamao. Tetrahedron. 1994, 50, 8997

Tosimizu has developed a stereospecific Ritter reaction

Need to be able to form a stable carbocation intermediate

The Ritter reaction