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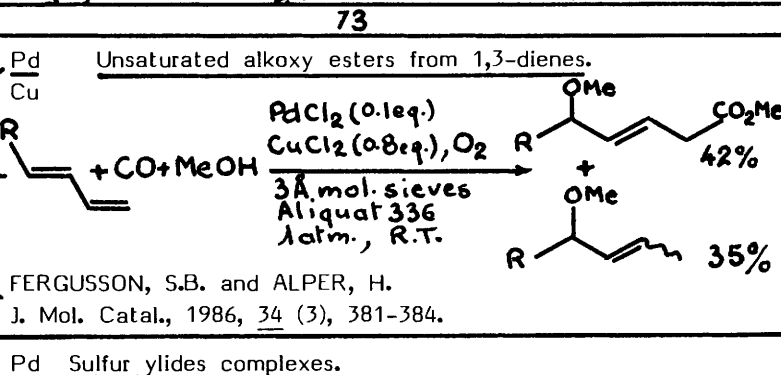
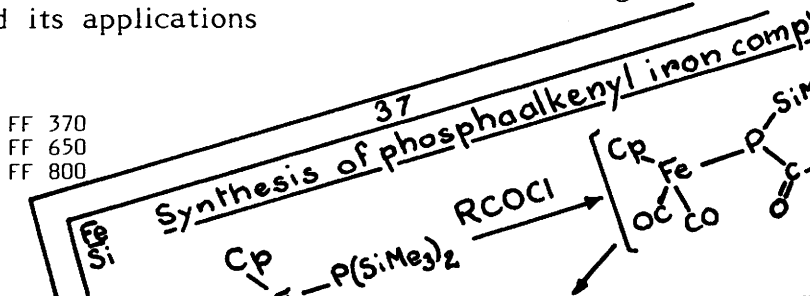
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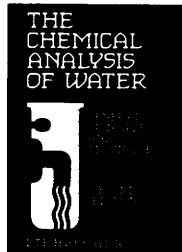
Key words

Reaction diagram

Bibliographic details



The Chemical Analysis of Water: General Principles and Techniques 2nd Edition



by A. L. Wilson and D. T. E. Hunt, *Water Research Centre, Medmenham*

Hardcover 704pp ISBN 0 85186 797 9
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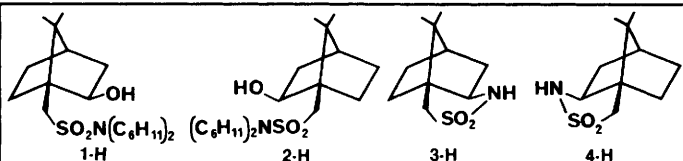
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Oppolzer's Chiral Auxiliaries

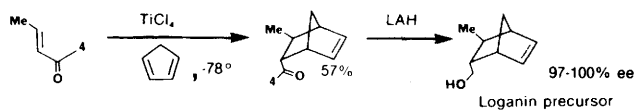


These chiral auxiliaries display excellent π -topological differentiation on reactions of their acryloyl (e.g., Diels-Alder, conjugate addition, hydrogenation)¹⁻⁶ as well as their enolate derivatives.^{5,7,9} Thus, chiral products are obtained in >90% diastereomeric excess (de) many of which can be purified to virtually 100% de by recrystallization. The auxiliaries are easily attached to the substrates⁴ and nondestructively removed from the products (e.g., by hydrolysis, transesterification and reduction) to give synthetically useful building blocks in high enantiomeric purity.

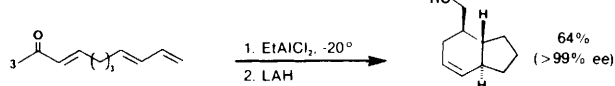
The following reaction schemes highlight a variety of recent asymmetric transformations which are directed by Oppolzer's auxiliaries.

Intermolecular Diels-Alder reaction¹⁻⁴

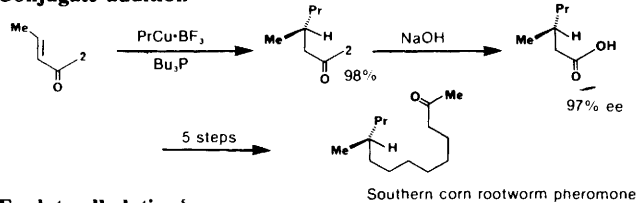
Preparation of a virtually pure chiral loganin precursor:⁴



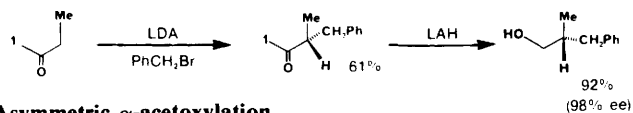
Intramolecular Diels-Alder reaction³



Conjugate addition⁵

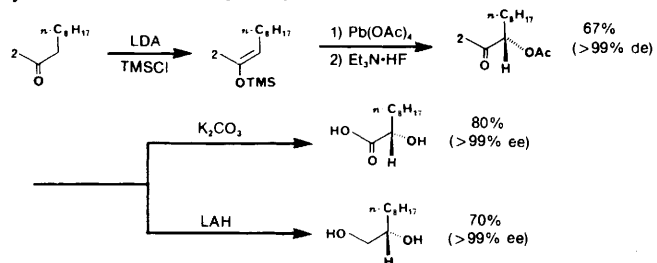


Enolate alkylation⁵



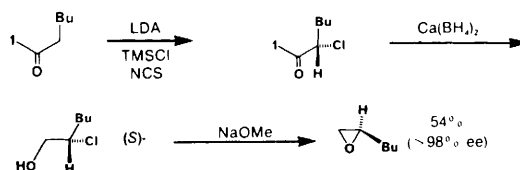
Asymmetric α -acetoxylation

Synthesis of chiral α -hydroxyacids and glycols:⁷

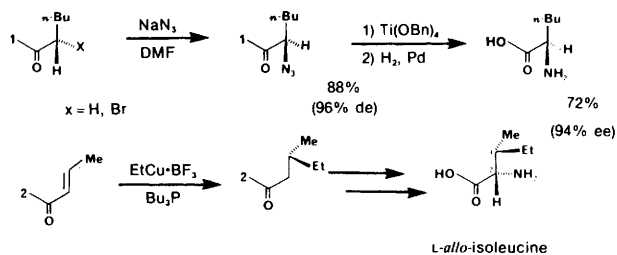


Asymmetric α -halogenation

Synthesis of chiral halohydrins and epoxides:⁹



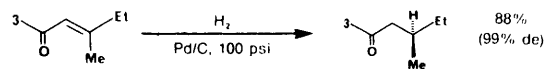
α -Amino acid synthesis¹⁰



Following this protocol, the combination of C(β)-alkylation (conjugate addition) with C(α)-halogenation provided the uncommon amino acid L-*allo*-isoleucine [(2S) - 99.3% ee, (3R) - 97.8% ee], an essential precursor in the synthesis of the psychotropic ergot peptide epiciprine.

Asymmetric hydrogenation⁶

A series of β,β -dialkylacrylamides prepared from auxiliary 3 gave reduced products of high diastereomeric excess on simple hydrogenation with H₂ and Pd/C.



References and notes:

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