

[Heterocycles, 38, 1751-1756 (1994)]

[Lab. of Pharm. Synthetic Chemistry]

**Diastereoselective Addition of Allyltriphenylstannane to 3-Sulfinylfurfural  
Mediated by Titanium(IV) Tetrachloride and Tin(IV) Tetrachloride.**

YOSHITSUGU ARAI,\* TSUTOMU MASUDA, YUKIO MASAKI, TORU KOIZUMI

The addition of allyltriphenylstannane to 3-sulfinylfurfural in the presence of titanium(IV) tetrachloride proceeded with high diastereoselectivity to give the furyl alcohol, whereas the similar treatment with tin(IV) tetrachloride afforded the other diastereoisomeric alcohol, exclusively.

[J. Chem. Soc., Perkin Trans. 1, 1994, 15-24]

[Lab. of Pharm. Synthetic Chemistry]

**Enantioselective Synthesis of (+)-Indolizine, (+)-Laburnine and  
(+)-Elaeokanines A and C Using the Diels-Alder Reaction of  $\alpha$ -  
(2-*exo*-Hydroxy-10-bornylsulfinyl) maleimides.**

YOSHITSUGU ARAI,\* TOHRU KONTANI, TORU KOIZUMI

The Diels-Alder adduct derived from *N*-butynylmaleimide and cyclopentadiene was transformed into the tetracyclic lactams and *via* a common precursor. The lactams were converted into (+)-indolizine and (+)-laburnine, respectively, *via* retro-Diels-Alder reaction. Similar methodology was successfully applied to the synthesis of (+)-elaekanine A and (+)-elaekanine C.

[J. Chem. Soc., Perkin Trans. 1, 1994, 25-40]

[Lab. of Pharm. Synthetic Chemistry]

**Diels-Alder Reactions of Optically Active  $\alpha$ -(2-*exo*-Hydroxy-10-  
bornylsulfinyl)-maleimides and its Application to Optically Active  
5-Functionalised Pyrrolidines *via* Retro-Diels-Alder Reaction.**

YOSHITSUGU ARAI,\* MAKOTO MATSUI, AKIHITO FUJII, TOHRU  
KONTANI, TOSHIYUKI OHNO, TORU KOIZUMI, MOTOO SHIRO

Optically pure sulfinylmaleimides were synthesized. The Diels-Alder reactions of the sulfoxides with various dienes showed high diastereoselectivity. Regioselective reduction of the adducts followed by desulfinylation afforded the  $\gamma$ -hydroxy lactams. *N*-Acyliminium additions using these compounds proceeded diastereoselectively to give  $\gamma$ -alkyl lactams by virtue of its conformationally rigid, bicyclo[2.2.1]- and 7-oxabicyclo[2.2.1]heptene moiety.