those procedures which involve 3-arylisoquinoline intermediates, because these synthons could be also involved in the synthesis of other alkaloid skeletons, such as protoberberines. We recently reported the synthesis of 3-arylisoquinolines which are crucial intermediates for the preparation of benzophenanthridines. This method offers an efficient route for diverse natural alkaloids. The convenient synthesis of chelerythridine will be described.

[PD1-9] [ 04/19/2002 (Fri) 10:00 - 13:00 / Hall E ]

## Electronic Factor in Cinchona Alkaloid Ammonium Salts Phase-Transfer Catalysts

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Phase-transfer catalytic reactions (PTC) have been widely applied in organic synthesis. The operational simplicity and mild reaction conditions enable this method become very useful methodology for the practical and industrial process. Recently chiral quaternary ammonium salts has arisen as useful phase-transfer catalysts for asymmetric synthesis. Especially a series of cinchona alkaloid type quaternary ammonium salts were introduced as chiral phase-transfer catalysts because of its cheap and commercial availability. Since the first introduction of N-benzylcinchonidinum halide by the O'Donnell, the more efficient catalysts, N-(9-anthracenylmethyl)cinchonidinum halide were independently developed by Lygo and Corey by the introduction of the bulky group on N(1) position. Also recently dimeric and trimeric catalyst were prepared as an efficient catalyst using benzene as a ligand. As part of our program for the mechanistic study in the alkylation using cinchona alkaloid type phase-transfer catalysts, we investigate the role of the electronic factor in enantioselectivity. Because the ion-pair of the quaternary ammonium cation and anionic substrate is important intermediate in the stage of the chiral induction, the electronic effect of N(1)-substituents might influence the enantioselectivity. In this poster, we report the role of the electronic factor in N(1)-benzylcinchonidinium ammonium salt.

[PD1-10] [ 04/19/2002 (Fri) 10:00 - 13:00 / Hall E ]

## Asymmetric synthesis of (2R, 3S, 4E)-2-Amino-5-phenyl-pent-4-ene-1,3-diols

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(2R, 3S, 4E)-2-Amino-5-phenyl-pent-4-ene-1,3-diols had been stereoselectively synthesized. (1R, 5R)-(+)-α-Pinene was treated with KMnO4 to give (1S, 2S, 5S)-(-)-2-hydroxy-3-pinanone, which reacted with ethylglycinate, boron trifluoride etherate and then with ClTi(OEt3), arylpropenal to yield (1S, 2S, 5S)-aldol compounds. These Compounds were hydrolyzed with HCl and reduced with NaBH4 to give (2R, 3S, 4E)-2-amino-5-phenyl-pent-4-ene-1,3-diols.

[PD1-11] [ 04/19/2002 (Fri) 10:00 - 13:00 / Hall E ]

## Mechanism Studies on CSI reaction of p-Substituted Phenylallyl Methyl Ethers

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We have recently described synthetic method for N-protected allylic amines from allyl ethers using chlorosulfonyl isocyanate(CSI) via the stable allylic carbocation, and furthermore, we developed novel