



Vali-e-Asr University
of Rafsanzan



19th Iranian Seminar on Organic Chemistry
Vali-e-Asr University of Rafsanzan, 5 -7 Sep. 2012



Asymmetric synthesis of oxindoles using a three component reaction via 1:3 dipolar cycloaddition reaction

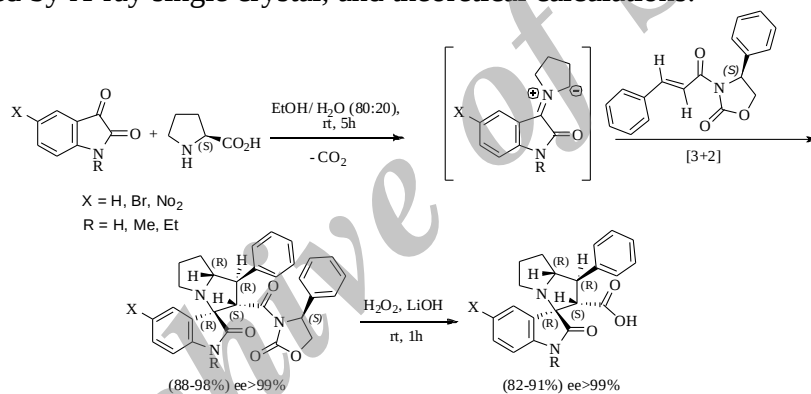
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1,3-Dipolar cycloaddition of azomethine ylides is a powerful method for the synthesis of highly functionalised five-membered ring heterocycles [1]. Some spiro pyrrolidines are potential as antileukemic and anticonvulsant agents [2] and possess antiviral [3] and local anaesthetic [4] activities. In this report, at first we prepared chiral non-racemic dipolarophiles from the reaction of acrylates with pure oxazolidinone as achiral auxiliary. Then the reactions were carried out in a one-pot and proceeded through a 1,3-dipolar cycloaddition reaction of the chiral dipolarophiles with non-stabilized azomethine ylides generated *in situ* by the condensation reaction of isatins with L-proline. After removal of oxazolidinone the new chiral spiro oxindolo-pyrrolizidines were obtained in high yield and enantiomeric excess. The configuration of one of the cycloaddition products confirmed by X-ray single crystal, and theoretical calculations.



References

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