Synthesis of 1,3-disubstituted-2,3-dihydro-1H-naphth[1,2e][1,3]oxazines

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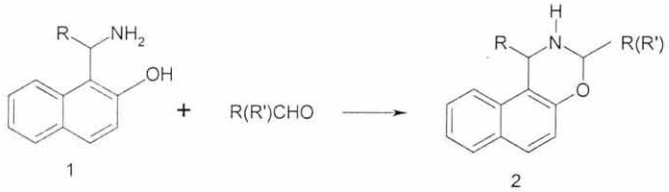
Zuhal Turgut,* Emel Pelit and Adem Köycü
Yıldız Technical University, Faculty of Science and Art, Department of Chemistry, Davutpasa Campus,34010,Esenler, Istabul, TURKEY. email:zturgut@yildiz.edu.tr

The development of simple synthetic routes to widely used organic compounds from readily available reagents is one of the main concerns of organic synthesis. Nitrogen heterocycles are of interest because they constitute an important class of natural and nonnatural products, many of which exhibit useful biological activity. Condensation of 2-naphthol and hetaryl- and substituted-benzaldehydes in the presence of ammonia, and subsequent acidic hydrolysis, gave **1**. Reactions of amino naphthols with equivalent amounts of aldehydes resulted in 1,3-disubstituted-2,3-dihydro-1H-naphth[1,2-e][1,3]oxazines, **2**.



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Towards the total synthesis of azadirachtin

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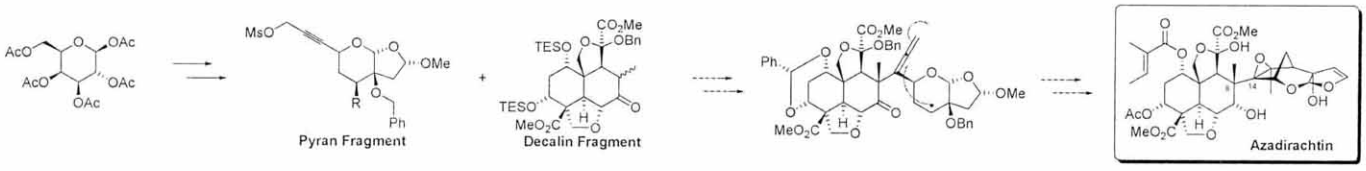
*Alistair Boyer, Brenda J. Burke and Steven V. Ley**
Department of Chemistry, University of Cambridge, Lensfield Rd., Cambridge, CB2 1EW, UK.
email: svl1000@cam.ac.uk

Azadirachtin is one of a range of terpenoid natural products isolated from the Indian neem tree: azadirachta indica. It is an extremely potent insect antifeedant and growth disruptor whilst exhibiting very low mammalian toxicity. Synthetically, azadirachtin is an exceptionally challenging target by virtue of its 16 contiguous stereogenic centers and array of oxygen functionalities. These factors coupled with its propensity for rearrangement are responsible for the lack of total synthesis to date.



Our current synthetic strategy involves the coupling of two fragments of similar complexity at a site remote from the sterically hindered C8-C14 bond. Claisen rearrangement of the resultant propargyl enol ether will then install this key bond. The complete skeletal framework of the natural product is then rapidly assembled: the allene functionality acting as a radical terminus to build the [3.2.1] ring system. To this end, we have synthesized a series of pyran fragments together with the decalin fragment. Model studies of the end game of the synthesis have proved successful.