SYNTHESIS OF BENZOFURANYL INDOLINONES AND SPIRONAPHTHOQUINONES BY REACTION OF 3-SUBSTITUTED PHTHALIDES AND OXINDOLE DERIVED NITRO-OLEFINS

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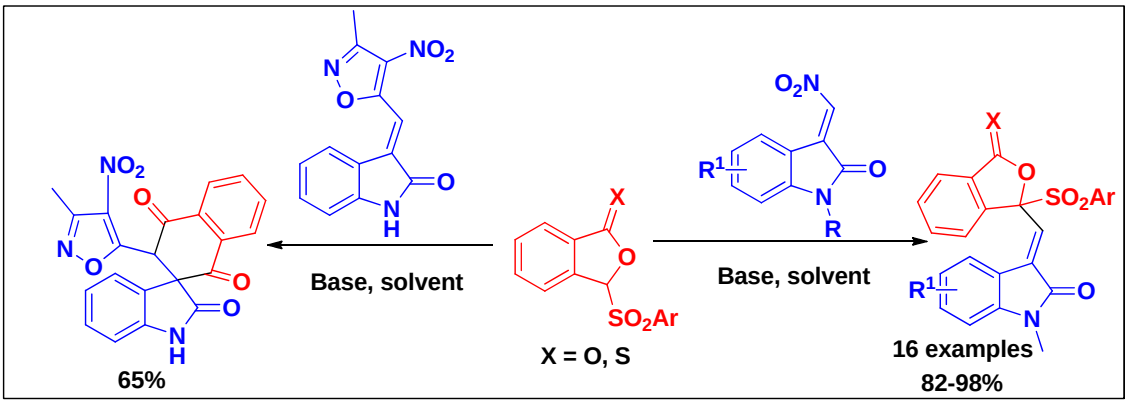
Naphthoquinone moiety is found in many bioactive natural products.[1] An efficient method for the construction of napthoquinone moiety is Hauser-Kraus annulation, in which a stabilized phthalide ion acts as Michael dono r with various activated olefins.[2] In this work, a Hauser-Kraus annulation between 3-sulfonylphthalide and oxindole derived nitroalkenes was attempted to construct spironaphthoquinone moieties, but instead, it underwent nucleophilic vinylic substitution of sp^2-nitro group to form benzofuranyl indolinones. On the other hand, when the reaction was performed between 3-sulfonylphthalide and oxindole derived nitrodienes it underwent conventional Hauser-Kraus annulation to afford spironaphthoquinone in good yield. In summary, a different reactivity of Hauser donor, *i.e* 3-sulfonylphthalide, with different oxindole derived nitro-olefins was demonstrated to construct diverse heterocyclic motifs.



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[2] (a) Hauser, F. M.; Rhee, R. P. *J. Org. Chem.* **1978**, *43*, 178. (b) Kraus, G. A.; Sugimoto, H. *Tetrahedron Lett.* **1978**, *19*, 2263. (c) Mal, D.; Pahari, P. *Chem. Rev.* **2007**, *107*, 1892.