

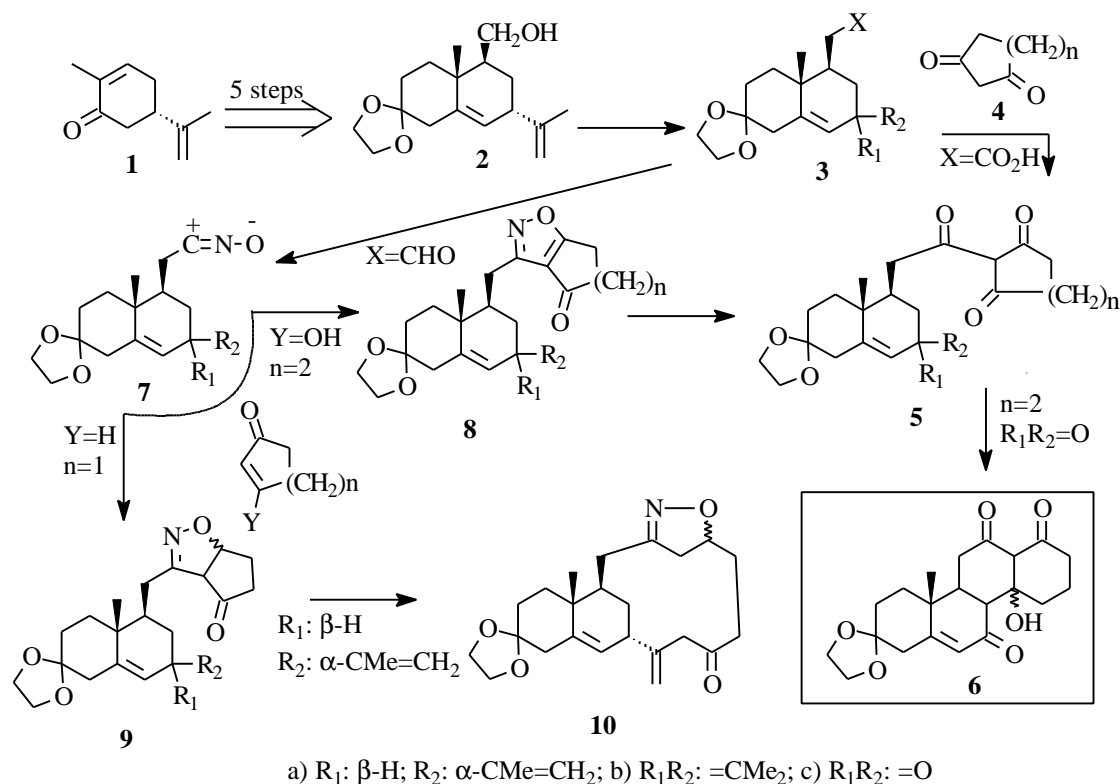
Studies on Steroid Total Synthesis Starting from (S)-(+)-Carvone

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(S)-(+)-carvone **1** has attracted our attention as possible precursor for the total synthesis of steroids. The decaline alcohol **2** available from **1** proved to be convenient intermediate for the intended transformation. Our strategy implied the initial formation of the seco steroid **5** followed by its cyclisation.



An alternative approach to seco steroids, based on the 1,3-cycloaddition of the nitrile oxide **7** with various carbonyl-containing dipolarophiles, has been investigated. Unexpected results have been obtained for the reaction of **7** with cyclopentenone. Adduct **9** proved to be unstable and intramolecular ene-reaction took place to afford an intermediate homoallylic alcohol, which under the reaction conditions gave **10** via a retro aldol type transformation.

The 1,3-cycloaddition of the nitrile oxide **7** with 1,3-cyclohexanedione gave the desired adduct which could be transformed into the β-triketone **5**.