Vali-e-Asr University of Rafsanjan

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

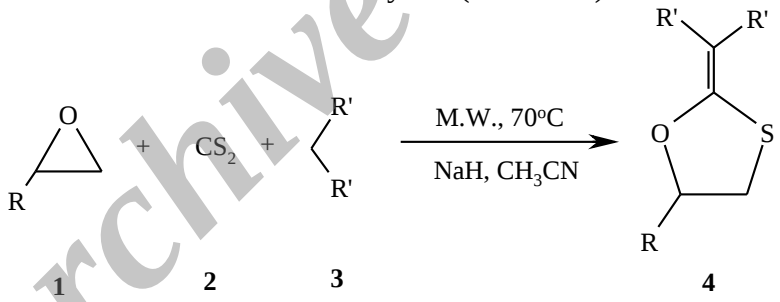
Microwave–assisted synthesis of 1,3-oxathiolane derivatives from the multicomponent reaction of epoxides

Faramarz Rostami-Charati[a], *Mehdi Shahraki*[b], *and Mohammad R. Hosseini-Tabatabaei*[b]

[a] Department of Chemistry, Facualty of Science, Gonbad Kavous University, P.O.Box 163,Gonbad, Iran
[b]Department of Chemistry, Zahedan branch, Islamic Azad University, Zahedan, Iran

E-mail: *f_rostami_ch@yahoo.com*

Because of the strain induced by the presence of a three membered ring [1], epoxides are significantly more reactive than to other ethers. Thus, they become as useful building blog compounds in organic synthesis. Synthetic procedures for epoxide ring opening can be based on nucleophilic or protic/Lewis acid-mediated electrophilic ring opening [2, 3]. A number of procedures which feature the oxyphilic Lewis character of metal ions and non-metallic Lewis acids have been developed. Suitable epoxide opening catalysts include Lewis acids, Lewis bases, Bronsted acids, thioxanthenone-fused azacrown ethers, Schiff base and porphyrin complexes [3-4]. Also, compounds containing an imine group are increasingly important in organic synthesis [5] and the mechanism of the cis/trans isomerization of imines is being studied in detail [6]. The 1,3-oxathiolane-2-imine structures includes an exocyclic imine group and can be used in organic synthesis for the preparation of biologically active compounds. As part of our current studies on the development of new routes in heterocyclic synthesis, we report an efficient procedure for direct synthesis of 1,3-oxathiolan derivatives **4** from the reaction of eopxide **1,** carbon disulfide **2** and CH-acids **3** microwave conditions at 70 ºC in excellent yield (Scheme 1).



1 **2** **3** **4**

References

[1] H.C. Kolb, M.G. Finn, K.B. Sharpless, *Angew. Chem. Int. Ed*. **2001**, *40*, 2004.
[2] J. M. Hornback, *Organic Chemistry, Thomson, second ed., Books/Cole publishing*, **2006**, 372.
[3] P.W. N. M. van Leeuwen, *Homogeneous Catalysis: Understanding the Art, Springer*, **2004**, 314.
[4] J. Jaramillo, L. Chiara, M. Martin-Lomas, *J. Org. Chem*. **1994**, *59*, 3135.
[5] (a) G. Borg, M. Chino, J. A. Ellman, *Tetrahedron Lett.* **2001**, *42*, 1433.
[6] J. E. Johnson, N. M. Morales, A. M. Gorszyca, D. D. Dolliver, M. A. McAlister, *J. Org.Chem*. **2001**, *66*, 7979.