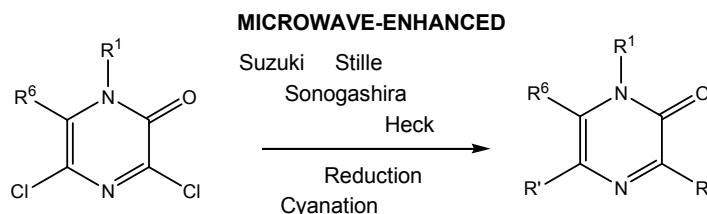


The Application of Microwave-Irradiation in Solution- and Solid Phase Chemistry of 2(1H)-Pyrazinones

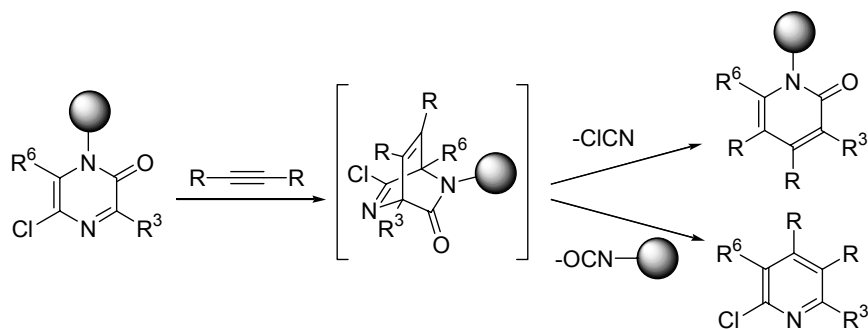
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In the course of the last two decades our laboratory explored 3,5-dichloro-2(1H)-pyrazinones as interesting starting materials for the elaboration of different types of skeletons of biologically active compounds. A versatile synthesis for these scaffolds has been developed. We have demonstrated the utility of different types of microwave-enhanced transition metal catalyzed cross-coupling reactions to introduce various substituents at the 3-position. The application of microwave irradiation will be discussed [1].



The multifunctionalized 2-azadiene system of these heterocycles was used in microwave-enhanced cycloaddition reactions in solution phase and on solid support. They undergo inter- and intramolecular cycloaddition-elimination reaction with acetylenes generating for example pyridines and pyridinones [2,3]. A careful comparison between conventional heating and microwave irradiation will be presented as well as a comparison between the solution phase- and solid phase chemistry [4].



[1] Nadya Kaval, Katalin Bisztray, Wim Dehaen, C. Oliver Kappe, Erik Van der Eycken, *Molecular Diversity* **2003**, 7, 125.

[2] Erik Van der Eycken, Prasad Appukkuttan, Wim De Borggraeve, Wim Dehaen, Doris Dallinger, C. Oliver Kappe, *J. Org. Chem.* **2002**, 67, 7904.

[3] Nadya Koval, Wim Dehaen, Oliver Kappe, Erik Van der Eycken, *Organic & Biomolecular Chemistry* **2004**, 2, 154.

[4] , Nadya Kaval, Johan Van der Eycken, Jürgen Caroen, Oliver Kappe, Wim Dehaen, Gernot A. Strohmeier, Erik Van der Eycken, *J. Comb. Chem.* **2003**, 5, 560.