JOURNAL of the MEXICAN CHEMICAL SOCIETY

JUNE - 2006 SPECIAL ISSUE 1, 50 (J. Mex. Chem. Soc.)

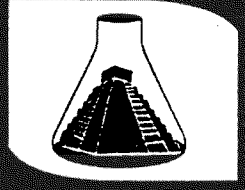
IUPAC ICOS-16

16th International Conference on Organic Synthesis
Mérida, México, June 11-15, 2006

CONFERENCE PROGRAM AND ABSTRACTS OF PAPERS

J. Mex. Chem. Soc. 2006, Special Issue 1, 50
ISSN 1870-249X
ISSN on line 1665-9686
www.jmcs.org.mx
México, D.F.

ICOS-16



Merida, Mexico, June 11-15, 2006

ICOS-244

Microwave-assisted Suzuki-Miyaura cross-coupling of aryl halides with phenylboronic acid catalyzed by a new palladium complex

Georgios A. Heropoulos,[a]* Ioannis D. Kostas[a], Dimitra Kovala-Demertzi[b] and André Loupy[c]
[a]National Hellenic Research Foundation, I.O.P.C., Vas. Constant. 48, 11635 Athens, Greece
[b]Dept. of Ioannina, Department of Chemistry, 45110 Ioannina, Greece
[c]Lab. de Réact. Sél. sur Supp., ICMMO, Univ. Paris Sud (b. 410), 91405 Orsay cedex, France
*e-mail: gheropl@eie.gr

Microwave irradiation is a strong tool for the chemist to explore chemical reactions. Here we want to report the synthesis of a new air and moisture stable palladium complex with a thiosemicarbazone ligand and its catalytic action in the Suzuki-Miyaura cross-coupling reaction of aryl halides with phenylboronic acid under microwave irradiation. In contrast to other palladium complexes with thiosemicarbazones, this complex was inactive towards the Suzuki-Miyaura coupling under aerobic conditions, by conventional heating. On the other hand, microwave irradiation promoted the effective catalytic activity of the complex for the coupling of aryl bromides and chlorides with phenylboronic acid in DMF/H_2O, under aerobic conditions. These results lead us to propose that specific microwave effects rather than thermal effects are responsible for the acceleration of this reaction. These specific microwave effects are evidently connected to the involvement of highly polar species and intermediates. The microwave-promoted cross-coupling reaction by palladium complexes with thiosemicarbazones provides a convenient approach relative to existing methods that require an inert atmosphere due to the air-sensitive nature of other catalysts