PREPARATION AND EVALUATION OF POLYANILINE-BASED PT CATALYSTS FOR SUZUKI COUPLING REACTIONS

Eszter Szentpéteri[1], Gábor Varga[1], Juan Gómez-Pérez[1], Fanni Czirok[1], Zita Sándor[1], Zoltán Kónya[1,2], András Sapi[1*]

[1] *Department of Applied and Environmental Chemistry, University of Szeged, H-6720 Szeged, Rerrich Béla tér 1, Hungary*

[2] *MTA-SZTE Reaction Kinetics and Surface Chemistry Research Group, H-6720 Szeged, Rerrich Béla tér 1, Hungary*

** Corresponding author: sapia@chem.u-szeged.hu*

Abstract

Composites made of polyaniline (PANI) and platinum nanoparticles were prepared in order to evaluate their catalytic performance in Suzuki coupling reactions. The differences on the oxidation state of the PANI, the temperature of the reaction conditions, the role of the solvent and the synergetic effect of the PANI with different sized Pt nanoparticles were investigated. The obtained materials were examined with a battery of characterization techniques including BET, SEM, TEM, TGA, XPS, and Raman spectroscopy in order to determine their surface properties, morphology, thermal stability, and oxidation degree, respectively. In comparison with equivalent composites made of SBA and Pt nanoparticles, our PANI-based catalysts exhibit better catalytic performance and recyclability even in the case of greener solvents.

Keywords: Pt nanoparticles, PANI, Suzuki coupling reaction, green solvent