STUDY OF HYDROGENIZATION AMINATION OF PROPANAL BY M- AND P-AMINOBENZOIC ACIDS IN THE PRESENCE OF Pd/C

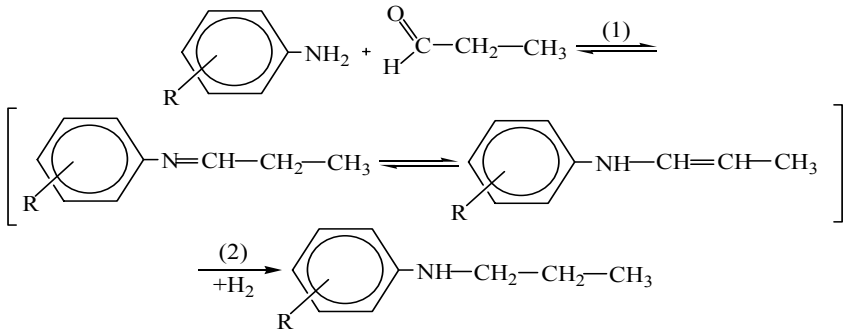
N.A. Magdalinova, T.G. Volkova, M.V. Klyuev

Ivanovo State University, biologi-chemical faculty, department of organic and biological chemistry

mn2408@mail.ru

Amines are important products of general and thin organic synthesis. Variety of amines structure causes a majority of methods of their synthesis, only some of the methods being universal. Catalytic hydrogenization amination of aldehydes with amines is one of the universal methods. Absence of harmful by-products allows treating it as "green" method of synthesis of secondary amines of different structures [1].

We studied hydroamination of propanal with *m*- and *p*-aminobenzoic acids (scheme 1):



R= 3-COOH; 4-COOH.

The reactions were carried out in mild conditions (solvents – ethanol, 2-propanol catalyst Pd/C with 1 mass % Pd content). Reduction of propylidene-*m*-aminobenzoic acid goes with high rate. From experimental data kinetic (rate constant) and energetic (activation energy) parameters have been calculated.

In the hydroamination process primary amine interacts with carbonyl compound with formation of azomethine which then is reduced to secondary amine. Ab initio quantum-chemical study in 6-31G bases of tautomeric equilibrium in azomethin – enamine system in isolated molecule approximation and continual approach (Hyper Chem and Games programs) were carried out for the substrates under consideration.

1. Klyuev M. V. Hydrogenization amination as universal "green" technology for amines synthesis // Rus. khem. journal. 2006. V. 50. №. 3. P. 93-103.

The work is executed within the framework of the Program " Development of a scientific potential of a higher school ", project РНП.2.2.1.1.7181.