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OBTAINING OF NEW IBUPROFEN FUNCTIONALIZED 4-ARYL-1, 2, 3, 4-TETRAHYDROISOQUINOLINE DERIVATIVES VIA HETEROGENEOUS-CATALYZED CYCLISATION: A GREEN METHOD FOR SYNTHESIS OF NEW CHERYLLINE DERIVATIVES

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1,2,3,4-Tetrahydroisoquinolines are very important class of synthetic and natural compounds, which display a broad range of medicinal activities such as antitumor, antibacterial, antiplasmodial, and β-adrenergic receptor antagonism. Tetrahydroisoquinoline arylated at C-4 shows prominent pharmaceutical activities. Cherylline is a naturally occurring 4-aryl-1, 2, 3, 4-tetrahydroisoquinoline alkaloid which has one stereo center in the molecule. Ibuprofen or 2-(p-isobutyl phenyl) propionic acid belongs to the non-steroidal anti-inflammatory agents with anti-inflammatory activity which has superior to that of salicylate and is similar to phenylbutazone and indomethacin. From this point of view, it was interesting for us to synthesise new compounds structurally containing a cherylline moiety as well as an ibuprofen residue attached thereto. We have successfully synthesized the required amides from the reaction between differently substituted 2, 2-diphenylethyl amines with ibuprofen and N, N'-dicyclohexylcarbodiimide. The second step of the synthesis was cyclization of the newly obtained amides in the intramolecular α-amidoalkylation reaction conditions. In recent years in the practice, acid catalysts are increasingly found as the catalytic systems of acid absorbed on silica and their application allows both the successful carry out of the reaction, as well as recovery and repeat of the consistent application, which identifies them as environmentally friendly green reagent. In search of green agents, we studied the possibility of application of the system TfOH/SiO2 as heterogeneous acid catalyst in the reaction of intramolecular α-amidoalkylation. The same systems in the recent years successfully were applied in a number of acid-catalysed synthetic procedures. They are characterized as environmentally friendly methods to minimize harmful waste products. The obtained new compounds 2 and 3 (Reaxys) are characterized by IR, 1H- and 13C-NMR and MS.

Biography

Stanimir Manolov received his B.Sc. of Computer chemistry (2008), M.Sc. (2009), and Ph.D. of Organic chemistry (2015) degrees from University of Plovdiv (Bulgaria). He works as assistant professor of organic chemistry from March 2012. In February 2016 he was appointed as a chief assistant professor of organic chemistry at University of Plovdiv "Paisii Hilendarski". His research in the group of Prof. Iliyan Ivanov is focused on the development of new synthetic methodologies of biologically active N and O containing natural compounds.

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