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Synthesis of novel spiro dipyrzolo[3,4-b:4',3'-e]pyridine

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Green chemistry synthesis of spiro[dipyrzolo[3,4-b':4',3'-e]pyridines derivatives are reported under basic conditions. 1,4-dihydropyridines have attracted much attention in both synthetic and biological research, as a class of calcium modulators are extensively investigated. Pyrazole derivatives display a wide range of biological and pharmacological activities for example, fungicidal, herbicidal. Spiro pyrazole-1,4-dihydropyridine moieties have shown important biological activities, such as anti-HIV, antibacterial, antiviral, cyclooxygenase inhibiting activities. Another family of this heterocyclic compounds with notable pharmacological activities are dipyrzolo pyridine compounds, as relative or anti-asthmatic compounds. Dipyrzolo pyridine are much attractive in the synthetic and medicine target for researcher, owing to their significant fluorescence, biological and pharmacological activities such as anti-cancer agent, hypotensive, cytotoxic and anti-bacterial activity. In addition, spiro[dipyrzolo[3,4-b':4',3'-e]pyridines system although less investigated exhibit also very promising biological agents, due to the presence of three effective functional of pyrazole, 1,4-dihydropyridine moieties and spiro framework, spiro- heterocyclic ring is rather exciting that gives structural rigidity to the compounds by conformational restrictions and therefore considerably increasing and effecting the biological activities. As a part of our ongoing interest in this context, we reported a simple and facile synthesis of a new type of spiro[dipyrzolo[3,4-b':4',3'-e]pyridines with Et₃N catalyst starting from hydrazine derivatives, ethyl acetoacetate, 3-methyl-1-phenyl-1*H*-prazol-5-amine and 5,6-dihydro-1*H*-pyrrolo[3,2,1-*ij*]quinolone 1,2(4*H*)-dione in environmentally friendly solvent of ethanol.

Biography

Bahman Ebrahimi Saatluo received his degree in Applied Chemistry from the Urmia University. He will receive his Ph.D degree in Organic Chemistry from the Urmia University (Iran) in 2017 after completing his research in the study of synthesis of polyazadodecahedrone and synthesis of spirooxindole compounds of 1,2,3,4-tetrahydroquinoline by base, acid and nano catalysts under the guidance of Professor Mohamam Mehdi baradarani. His current research interest focuses on the synthesis of spirooxindole and supramolecular in heterocyclic for organic synthesis.

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