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# NEW MAGNETIC NANOPARTICLE CATALYST FOR THE SYNTHESIS OF PHARMACEUTICALLY ACTIVE TETRAZOLOPYRIMIDINES

Oleg M Demchuk<sup>1</sup>, A Maleki<sup>2</sup>, J Rahimi<sup>2</sup>, A Z Wilczewska<sup>3</sup> and R Jasinski<sup>4</sup>

<sup>1</sup>Pharmaceutical Research Institute, Poland

<sup>2</sup>Iran University of Science and Technology, Iran

<sup>3</sup>University of Białystok, Poland

<sup>4</sup>Institute of Organic Chemistry-Cracow University of Technology, Poland

Substituted pyrimidines are very important biologically and pharmaceutically active agents in the medicinal chemistry and drug discovery processes. A multicomponent reaction (MCRs) is ideal synthetic strategy to construct diverse molecular scaffolds of tetrazolopyrimidines starting from a few simple materials or intermediates. In connection with our continuous interest in designing new efficient and green protocols for synthesis of new biologically active compounds, we developed sonochemical approach for the one-pot four-component synthesis of 5-methyl-7-aryl-4,7-dihydro-tetrazolo[1,5-a]pyrimidine-6-carboxylic esters, obtained in the reaction of 2-cyano-guanidine, sodium azide, various aromatic aldehydes and methyl or ethyl acetoacetates in the presence of a catalytic amount of new functionalized hybrid organic-inorganic nanoparticle magnetic metal oxide core-shell based [1] catalyst  $\text{Fe}_2\text{O}_3@\text{SiO}_2-(\text{CH}_2)_3\text{NHC(O)(CH}_2)_2\text{PPh}_2$ . This is the first design, preparation, full characterization and application of the present nanomaterial and also the first ultrasound irradiated synthesis of the biologically and pharmaceutically important heterocyclic compounds in water used as a green solvent. The novel protocol offers several advantages such as high yields, short reaction times, mild reaction conditions, environment-friendly reaction media, easy isolation of the products, simple preparation and recoverability of the nanocatalyst by an external magnet and reusing several times without significant loss of activity. The details of our studies, which describe a scope and generality of the one-pot, simple and high atom economy strategy of synthesis of tetrazolopyrimidine derivatives with respect to various starting materials, will be presented.

O.Demchuk@iFarm.eu

