EuroSciCon

Annual Congress on
Medicinal Chemistry, Pharmacology and toxicology

July 30-31, 2018
Amsterdam, Netherlands

J Org Inorg Chem 2018, Volume 4
DOI: 10.21767/2472-1123-C3-009

# SYNTHESIS OF PHARMACEUTICALLY ACTIVE TETRAZOLOPYRIMIDINES CATALYSED BY NEW MAGNETIC NANOPARTICLES

**Oleg M Demchuk[1], A Maleki,[2] J Rahimi,[2] and A Z Wilczewska[3]**

[1]Maria Curie-Skłodowska University, Lublin, Poland
[2]Iran University of Science and Technology, Tehran, Iran
[3]University of Białystok, Białystok, 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 design of new efficient and green protocols of synthesis of new biologically active compounds, we developed sonochemical approach for the one-pot four-component synthesis of 5-methyl-7-aryl-4,7-dihydrotetrazolo[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 catalyst $Fe_2O_3$@$SiO_2$-$(CH_2)_3NHC(O)(CH_2)_2PPh_2$. 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 and environment friendly reaction media, easily 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.**

Oleh.Demchuk@UMCS.Lublin.pl

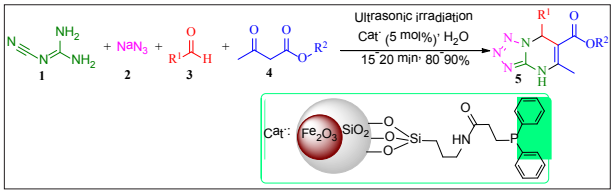


**Figure.** Synthesis of tetrazolo[1,5-a]pyrimidines