PEG_{400} AS SOLVENT IN THE SYNTHESIS OF NEW 7-[4-ALKYL OR (HET)ARYL-1*H*-1,2,3-TRIAZOL-1-YL)THIENO[3,2-*b*]PYRIDINES BY Cu(I)-CATALYZED AZIDE-ALKYNE CYCLOADDITION

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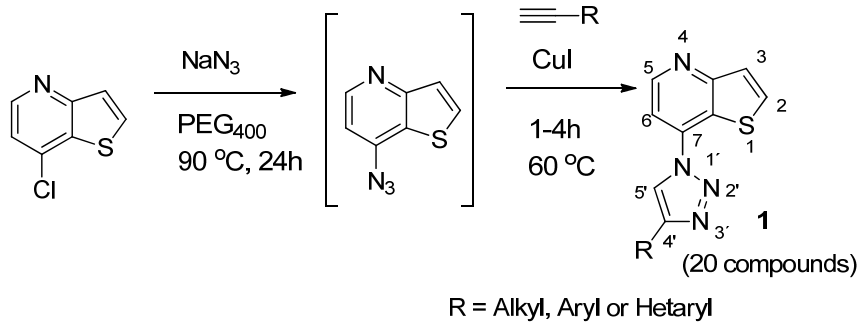
The thieno[3,2-*b*]pyridine and the 1,4-disubstituted-1,2,3-triazole are important scaffolds for medicinal chemistry. Following our work on the thieno[3,2-*b*]pyridine scaffold, we recently published the synthesis of new alkyl 3-[4-(Aryl or HetAr)-1*H*-1,2,3-triazol-1-yl)thieno[3,2-*b*]pyridine-2-carboxylates from alkyl 3-aminothieno[3,2-*b*]pyridine-2-carboxylates in a one-pot two steps procedure using *t*-BuONO and $TMSN_3$ in acetonitrile at rt followed by Cu(I)-Catalyzed Azide-Alkyne Cycloaddition (CuACC) using (het)arylalkynes, CuI and Et_3N.[1]

Herein we present the synthesis of new 7-[4-alkyl or (het)aryl-1*H*-1,2,3-triazol-1-yl)thieno[3,2-*b*]pyridines in good to high yields (50-75%) using the green solvent PEG_{400}[2] by CuACC in a one-pot two steps procedure from the 7-chlorothieno[3,2-*b*]pyridine and NaN_3 at 90 °C for 24h, to form the intermediate azide, followed by the addition of alkyl or (het)arylalkynes and CuI at 60 °C for 1-4h, after optimization of the reaction conditions (Scheme 1).



Scheme 1: Synthesis of compounds **1** in PEG_{400}

With this work we were able to optimize the reaction conditions and to study the scope of the reaction in the position 7 of the thieno[3,2-*b*]pyridine scaffold using a one-pot procedure in an environmental friendly solvent. The new compounds were fully characterized and they will be submitted to biological studies.

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[1] J. M. Rodrigues, M.-J. R. P. Queiroz *Synthesis* **2016**, *48*, 2904-2910.

[2] E. Colacino, J. Martinez, F. Lamaty, L. S. Patrikeeva, L. L. Khemchyan, V.P. AnaniKov, I.P Beletskaya *Coord. Chem. Rev.* **2012**, 256, 2893-2920.