

POSTER PRESENTATIONS

SYNTHESIS AND BIOLOGICAL EVALUATION OF ALKALOID LUPININE-TRIAZOLE DERIVATIVES AS ACETYLCHOLINESTERASE INHIBITORS

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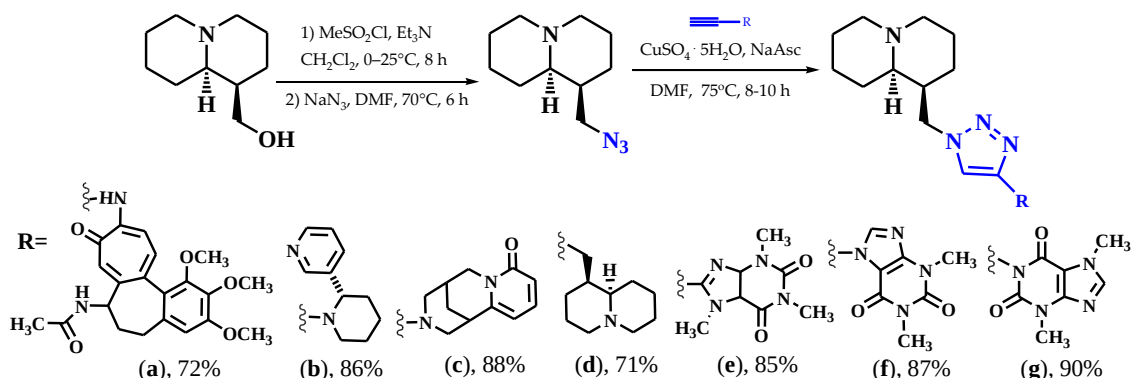
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The development of efficient approaches for the synthesis of biologically active molecules remains a central goal in medicinal chemistry. Herein, we describe novel alkaloid lupinine derivatives as promising lead scaffolds with AChE inhibitory activity. Lupinyl azide was obtained by the reaction of lupinyl methanesulfonate with sodium azide [1]. The CuAAC reaction of azide with ethynyl-substituted derivatives of natural alkaloids (colchicine (**a**), anabazine (**b**), cytosine (**c**), lupinine (**d**), caffeine (**e**), theophylline (**f**) and theobromine (**g**)) proceeds selective in mild conditions with the formation of novel type of hybrid compounds in satisfactory to excellent yields (71–90%) (Scheme).



Scheme. Synthesis of hybrid (1S,9aR)-1-((1,2,3-triazol-1-yl)methyl)octahydro-1H-quinolizines (**a-g**) from (-)-lupinine (**1**)

The structure of the novel compounds was confirmed by ¹H and ¹³C NMR, IR, HR-MS data, and by X-ray single crystal diffraction study. Anticholinesterase activity was tested *in vitro*, and molecular docking studies were performed to better understand the binding interactions that lead to enzyme inhibition.

References:

1. Nurmaganbetov Zh.S. et al., Synthesis and analgesic activity of 1-[(1,2,3-triazol-1-yl)methyl]quinolizines based on the alkaloid lupinine [J], Chem. Heterocycl. Compd., 2021, 57(9): 911-919.

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