İZMİR KÂTİP ÇELEBİ UNIVERSITY

DRD 2023

International Multidisciplinary Symposium on Drug Research & Development

Organized by
Faculty of Pharmacy, İzmir Katip Çelebi University
&
Society of Researchers in Pharmacy & Medicine (İLARUD)

SPECIAL TOPIC

NEURODEGENERATIVE DISEASES: NEW DEVELOPMENTS IN TREATMENT

May 4-6, 2023

İzmir Katip Çelebi University, Çiğli Main Campus
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OP81– 3-CYANOPROPYL FUNCTIONALIZED N- HETEROCYCLIC CARBENE PRECURSORS SYNTHESIS AND ENZYME INHIBITION

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N-heterocyclic carbenes (NHC) are heterocyclic compounds consisting of singlet carbenes and containing a nitrogen atom. The ease of synthesis, functionalization, isolation, and success of NHCs in complexing with a wide variety of hard/soft metal ions increase the importance of NHCs as excellent ligands. In this study, 3-cyanopropyl-functionalized NHC precursors were synthesized and inhibition effects on carbonic anhydrase enzymes (hCA I and hCA II) and acetylcholine esterase (AChE) enzyme were evaluated. Substances showing good inhibition effect on hCA I enzyme compared to acetazolamide were determined as 1c>1a>1b>1d, respectively. 1f and 1e showed similar effects with acetazolamide on hCA I enzyme. The effect of 1g coded substance on hCA I was lower than acetazolamide. Compared with acetazolamide, the substances showing an inhibitory effect on the hCA II enzyme were determined as as 1d>1f>1a>1c, respectively. The substance coded 1b showed a similar effect with acetazolamide on the hCA II enzyme. Substances coded 1e and 1g showed a lower effect on the hCA II enzyme than acetazolamide. Substances that showed good inhibition effect on AChE enzyme compared to tacrine were determined as 1a>1c>1e>1b>1f coded substances, respectively. The 1d coded substance showed similar effects with tacrine on the AChE enzyme. The 1g coded substance had a lower effect on the AChE enzyme than tacrine.

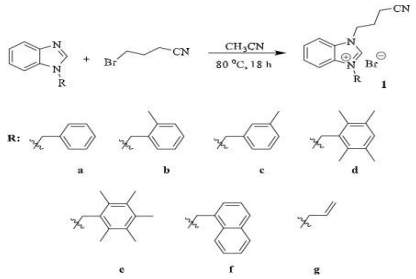

Fig. 1. Codes of synthesized chemicals

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