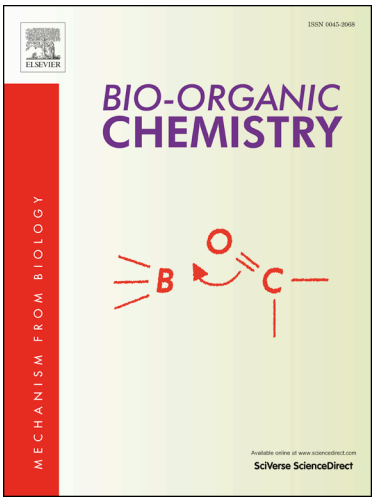

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Dihydroactinidiolide, a natural product against $A\beta_{25-35}$ induced toxicity in Neuro2A cells: Synthesis, *in silico* and *in vitro* studies

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ABSRACT

Synthesis of natural products has speeded up drug discovery process by minimizing the time for their purification from natural source. Several diseases like Alzheimer disease (AD) demand exploring multi targeted drug candidates, and for the first time we report the inhibitory potential of a novel anti AD target, which is the synthesized dihydroactinidiolide (DA). Though the activity of DA containing solvent extracts have been proved to possess free radical scavenging, anti bacterial and anti cancer activities, the pharmacological properties of DA per se has not been evidenced yet. Hence DA was successfully synthesized from β-ionone using facile two-step oxidation method. It showed potent acetylcholinesterase (AChE) inhibition with half maximal inhibitory concentration (IC_{50}) 34.03nM, which was further supported by molecular docking results showing strong H bonding with some of the active site residues such as GLY117, GLY119 and SER200 of AChE. Further it displayed DPPH and (.NO) scavenging activity with IC_{50} value