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Multi-target-directed ligands inhibition of acetylcholinesterase, amyloid aggregation and its significance in Alzheimer's disease treatment

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A treatment to the Alzheimer's disease (AD) consists of inhibition of the Acetylcholinesterase, which is responsible for the acetylcholine control in the synapses. A new class of multi-target-directed ligands (MTDLs) based on a 1,10-phenanthroline-5,6-dione derivatives were tested in vitro against acetylcholinesterase (AChE) these compounds inhibit AChE-induced anti-amyloid (A β) aggregation. 1,10-phenanthroline-5,6-dione can act as a lead molecule for developing drug(s) against AD disease with dual functions namely. The in vitro evaluation of the prepared compounds were tested by using Ellman's colorimetric method in 96-welled microplates some of them showed lower IC₅₀ values on inhibiting the AChE and the IC₅₀ value 6E-6-[(2-hydroxyphenyl) imino]-1,10-phenanthroline-5(6H)-one was 53 mM. This study provided beneficial information for further development of resveratrol derivatives as multitarget-directed agents for AD therapy.

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