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In vitro And in vivo Anticholinesterase Activity of the Volatile Oil of the Aerial Parts of Ocimum Basilicum L. and O. africanum Lour. Growing in Egypt

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Abstract : In this study, the in vitro anticholinesterase activity of the volatile oils of both O. basilicum and O. africanum was investigated and both samples showed significant activity. As a result, the major constituents of the two oils were isolated using several column chromatography. Linalool, 1,8-cineol and eugenol were isolated from the volatile oil of O. basilicum and camphor was isolated from the volatile oil of O. africanum. The anticholinesterase activity of the isolated compounds were also evaluated where 1,8-cineol showed the highest inhibitory activity followed by camphor. To confirm these activities, learning and memory enhancing effects were tested in mice. Memory impairment was induced by scopolamine, a cholinergic muscarinic receptor antagonist. Anti-amnesic effects of both volatile oils and their terpenoids were investigated by the passive avoidance task in mice. We also examined their effects on brain acetylcholinesterase activity. Results showed that scopolamine-induced cognitive dysfunction was significantly attenuated by administration of the volatile oils and their terpenoids, eugenol and camphor, in the passive avoidance task and inhibited brain acetylcholinesterase activity. These results suggest that O. basilicum and O. africanum volatile oils can be good candidates for further studies on Alzheimer's disease via their acetylcholinesterase inhibitory actions.

Keywords : Ocimum baselicum, Ocimum africanum, GC/MS analysis, anticholinesterase
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