Natural Acetylcholinesterase Inhibitors Used in Alzheimer's Disease Treatment

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Alzheimer's Disease, one of the most progressive neurodegenerative diseases, is characterized by cognitive dysfunction, dementia and also lower acetylcholine levels in the learning and memory sections of the patients' brains (1,2). According to the cholinergic hypothesis, the inhibition of acetylcholinesterase enzyme (AChE) which catalyzes the acetylcholine hydrolysis, increases the acetylcholine levels in the brain and regulates the degenerative cholinergic functions (2).

The treatment of Alzheimer's disease is palliative and acetylcholine inhibitors such as tacrine, donepezil, rivastigmine and galantamine are mostly used in the treatment. The first natural drug notified by FDA is the alkaloid 'Galantamine' which is obtained from Galanthus species (2,3). Also in the literature various polyphenolics and phytochemicals have been reported to be effective in the Alzheimer's treatment and prophylaxis.

The natural AChE inhibitors obtained from plants, fungi or marine species have mostly alkaloid structure. There are also terpenoid, flavonoid and phenolic structured natural compounds which may act as AChE inhibitor reported in the literature.

Due to the data supplied by the present epidemiologic studies, the natural originated compounds used in neurodegenerative diseases with cognitive dysfunction such as Alzheimer's disease, should be investigated (4). In this present work, current data on the natural acetylcholinesterase inhibitors are reviewed and summarized.

References