



Role of Plant Derived Alkaloids and Polyphenols in Prevention & Treatment of Alzheimer's Disease

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ABSTRACT: In recent years, therapeutic effect of natural products and medicinal herbs has gained popularity. Most of these plant compounds have been widely studied for their effects on Alzheimer's disease (AD). AD is characterized by a progressive impairment of memory and other cognitive skills further leading to dementia. The major pathology associated is accumulation of amyloid- beta peptide oligomers and activity of acetylcholinesterase enzyme (AChE), the key enzyme involved in the breakdown of acetylcholine. Most of these plant derived polyphenolic antioxidants like myricetin, rosmarinic acid, nordihydroguaiaretic acid, ferulic acid, kaempferol, resveratrol, aidzein, naringin, procyanidin isomers, procyanidin dimer gallate, quercetin 3-O-rhamnoside, quercetin 3-O-glucuronide, quercetin hexose gallic acid, quercetin hexose protocatechuic acid, ellagic acid and epigallocatechin-3-gallate have showed promising effect in preventing the consequences of ROS scavenging and β amyloid accumulation. Similarly, another treatment strategy for AD is inhibition of AchE activity and various studies on naturally occurring plant alkaloids like harmine, pleiocarpine, kopsinine, oliveroline, noroliveroline, liridonine, isooncodine, polyfothine, darienine and eburnamine, eburnamonine, eburnamenine, geissoschizol have showed their anti-cholinergic action for AD. Further, pleiocarpine, huperzine A and physostigmine are reported as potential inhibitors for AchE activity. Increasing number of *in vitro* and *in vivo* studies of these plant derived polyphenols and alkaloids suggest their significant role as neuroprotective agent. This review summarizes possible effects and mechanism of plant derived polyphenols and alkaloids on various causes of AD. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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