

# Nootropic and Anti-Alzheimer's Actions of Medicinal Plants: Molecular Insight into Therapeutic Potential to Alleviate Alzheimer's Neuropathology

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Medicinal plants are the backbone of modern medicine. In recent times, there is a great urge to discover nootropic medicinal plants to reverse cognitive dysfunction owing to their less adverse effects. Alzheimer's disease (AD) is an age-related neurodegenerative disorder characterized by the inevitable loss of cognitive function, memory and language impairment, and behavioral disturbances, which turn into gradually more severe. Alzheimer's has no current cure, but symptomatic treatments are available and research continues. The number of patients suffering from AD continues to rise and today, there is a worldwide effort under study to find better ways to alleviate Alzheimer's pathogenesis. In this review, the nootropic and anti-Alzheimer's potentials of 6 medicinal plants (i.e., *Centella asiatica*, *Clitoria ternatea*, *Crocus sativus*, *Terminalia chebula*, *Withania somnifera*, and *Asparagus racemosus*) were explored through literature review. This appraisal focused on available information about neuroprotective and anti-Alzheimer's use of these plants and their respective bioactive compounds/metabolites and associated effects in animal models and consequences of its use in human as well as proposed molecular mechanisms. This review progresses our existing knowledge to reveal the promising linkage of traditional medicine to halt AD pathogenesis. This analysis also avowed a new insight to search the promising anti-Alzheimer's drugs. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

Alzheimer's disease

Cognitive enhancers

Medicinal plants

Neurofibrillary tangles

Nootropics

Senile plaques

Asparagus racemosus extract

Centella asiatica extract

cholinesterase inhibitor

Clitoria ternatea extract

Crocus sativus extract

nootropic agent

plant extract

Terminalia chebula extract

unclassified drug

Withania somnifera extract

nootropic agent

plant extract

Alzheimer disease

antioxidant activity

Asparagus racemosus

biological activity

Centella asiatica

Clitoria ternatea

cognition

Crocus sativus

drug effect

drug mechanism

human

learning

medicinal plant

memory

molecular interaction

neurofibrillary tangle

neuropathology

neuropharmacology

neuroprotection

nonhuman

pathogenesis

psychoactive plant

Review

Terminalia chebula

tranquilizing activity

Withania somnifera

Alzheimer disease

animal

isolation and purification

pathology

procedures

randomized controlled trial (topic)

Alzheimer Disease

Animals

Humans

Nootropic Agents

Plant Extracts

Plants, Medicinal

Randomized Controlled Trials as Topic