

## PLANTS WITH POSSIBLE ACTION ON ALZHEIMER DISEASE: PHYTOCHEMICAL AND BIOLOGICAL STUDIES

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Alzheimer's disease (AD) is a neurodegenerative disorder and represents the most common type of dementia among elderly people. Thus far, oxidative stress, acetylcholine (ACh) low levels, the imbalance of metals metabolism and also the deposits of  $\beta$ -amyloid ( $A\beta$ ) have been considered to play an important role in AD pathogenesis.

Synaptic dysfunction, tau protein hyperphosphorylation and aggregation, neuroinflammation, and oxidative stress would then follow, leading eventually to neuronal death and neurotransmitter deficits. The first and so far, sole marketed anti-Alzheimer drugs are the AChE inhibitors (donepezil, rivastigmine, and galantamine), which increase the ACh levels; these drugs, however, are effective only for symptomatic treatment of AD, since they are not able to prevent the progression of the disease. In the past years, there has been intense research activity for developing drugs able to inhibit  $A\beta$  formation or aggregation.

Therefore, therapies with combination of drugs or the development of multitarget anti-Alzheimer drugs has become a primary objective. Our research focuses on this type of molecular recombination based on plant extracts with antioxidant, anticoagulant and antimicrobial potential. In this work we have evaluated four medicinal plants in the mixture from the point of view of antioxidant, antimicrobial and anticoagulant properties in order to study them later as possible alternatives in Alzheimer's disease.

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