

Functional Foods and Nutraceuticals with Antioxidant and Neuroprotective Properties in Ameliorating Neurodegenerative Diseases**Author:** Gülaçtı Topçu**Affiliation:** *Bezmialem Vakıf University, Faculty of Pharmacy, Department of Pharmacognosy and Phytochemistry, Drug Application & Research Center, Bezmialem Vakıf University, 34093, Fatih, İstanbul, Türkiye*
gtopcu@bezmialem.edu.tr

Functional foods are whole foods or food products which are specifically designed to prevent our health beyond their basic nutritional content. They are consumed as part of a regular diet which can include everyday items like fortified cereals, omega-3 enriched eggs, probiotic yogurt, beverages with added antioxidants. Nutraceuticals are products derived from food sources that provide health benefits beyond basic nutritional value. They can include dietary supplements, fortified foods, herbal products, and some other naturally occurring substances. Nutraceuticals can take various forms, including pills, capsules, powders, extracts, and other concentrated forms. Since plants are very rich in antioxidant compounds (flavonoids, anthocyanins, tannins, and other polyphenolics), they were studied for their potential implications in neuro-degenerative diseases, particularly Alzheimer (AD) [1, 2] and Parkinson diseases (PD) [3, 4] by many groups. Although not fully understood, the pathological process associated with AD is believed to be multifactorial. Neuroprotective strategies involving multiple mechanisms of action are important for the prevention and treatment of AD [1,7]. Therefore, secondary metabolites of the plants may play vital roles as preventive and ameliorating agents in some neurodegenerative diseases, such as dementia, Alzheimer and Parkinson diseases [1-7]. Marine sources, particularly omega-3 acids, potentially protect neurodegeneration as well as improve memory and cognitive functions. Many natural compounds show anti-Alzheimer activity through specific pharmacological mechanisms like targeting β -amyloid, beta-secretase1 and acetylcholinesterase, and they are further investigated through molecular docking studies recently [2,7]. In the last 20 years, our group has investigated some plant extracts and secondary metabolites, namely from Lamiaceae and Apiaceae families, for antioxidant, neuroprotective and anticholinesterase activities. For this purpose, many *Salvia* and *Sideritis* extracts and their pure compounds have been screened as well as a series of *Teucrium* and *Nepeta* species (in vitro). From the Apiaceae family, *Heracleum*, *Prangos* and *Ferulago* plants' species have been investigated, and the results obtained are promising [2, 5-7] to prepare for new functional foods and nutraceuticals.

Keywords: Functional foods; nutraceuticals; bioactive compounds; antioxidants; anticholinesterases.**References**

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