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Effects of Oleuropein on Neuronal modulation

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Neurodegeneration, which increases with aging, decreases cognitive and motor function. Neuronal death in neurodegeneration is mostly caused by neuroinflammation, mitochondrial dysfunction and oxidative stress. Recently, many studies are concentrated on slowing down, even stopping, the neurodegeneration using different molecules. In addition, slowing the neurodegeneration down has beneficial effects on learning and memory. Importantly, recent studies on oleuropein have shown that it has neuroprotective effects.


In this study, we investigated the effects of oleuropein on different brain waves patterns. Effects of oleuropein with dietary intake on neuronal modulation was studied on 12 subjects. EEG recordings of the voluntary subjects were analysed using ASA software. Our results show that the difference of alpha frequency magnitude between two hemispheres has decreased, beta frequency magnitude has decreased on the left hemisphere, theta frequency magnitude has decreased on both hemispheres, gamma frequency magnitude has especially decreased on right hemisphere and the slowest wave, the delta wave, frequency magnitude has significantly increased on both hemispheres. When the overall brain activity is examined, we identified a general decrease on brain wave frequencies.

Our results show that oleuropein may have anxiolytic effects via change of neuronal modulation. Suppression of slow waves may have effects on learning mechanism. However, dose dependent increase of the anxiolytic effect may act contrary and repress learning mechanisms.

Biography

Aynur Müdüroglu Kırmızıbekmez graduated from Istanbul University Faculty of Science and Literature in 2005. In 2008, she received her master's degree from the Department of Neuroscience, Istanbul University Experimental Medicine Research Institute with the thesis title "Research on the relationship between atherosclerotic stroke formation and interleukin 15 gene polymorphism". In 2013, she received her Ph.D degree from the Experimental Medicine Research Institute Advanced Neurological Science Program with the thesis title "Behavioral and molecular investigation of the Interaction of Neuropeptide Y and CART (Cocaine and Amphetamine Regulated Transcript) in the Central Nervous System". Examination of neurodegenerative diseases at the molecular level has taken place in many of her research projects, including antiaging, learning and decision making mechanisms. She has various scientific articles published on journals and presented on scientific conferences and symposiums.

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