Finanziato dall'Unione europea NextGenerationEU | Ministero dell'Università e della Ricerca | Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA | Consiglio Nazionale delle Ricerche

Project tite: Extra virgin olive oil polyphenols for healthy aging: from bench to bedside

Acronym: Polyphen-AD

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Description:

Polyphenolic compounds are ubiquitous in plants, fruits and vegetables, many epidemiological studies indicate that these substances are active in the prevention of many diseases, by exerting remarkable antioxidant, anti-inflammatory, and immunomodulating activities that may play a role in delaying the onset and to slow down the progression of neurodegenerative diseases such as Alzheimer's disease (AD). The extra virgin olive oil (EVOO) is rich in a specific class of polyphenols known as secoiridoids, in particular oleocanthal and oleacein, which are able to modulate the production of pro and anti-inflammatory cytokines, as well as modulating the immune system by acting on leukocyte proliferation involved in immunological defence.

Aims:

The aim of this research project is to study the mechanisms underlying the well-known antioxidant and anti-inflammatory activity of the polyphenols contained in olive oil. The study is divided into a part of basic research on cellular models of AD, a part of preclinical research carried out on animal models of AD disease (mice and *D.melanogaster*), and a clinical study on elderly subjects suffering from AD, whose diet will be supplemented with a well-dosed daily amount of olive oil rich in polyphenols.

Expected results:

The endpoints of this translational and interdisciplinary study with a combined effort of several research groups, will allow us to evaluate the effects of polyphenol on systemic oxidative stress and inflammation in AD animal models, and testing the beneficial effects of these substances in a pilot clinical trial in AD patients. This could help to identify a therapeutic target for the future use of possible immunomodulatory therapies, and it could also provide the basis for referring patients to appropriate supportive nutritional therapy.

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