Annual Meeting 'Nutrition and environment' and 'membrane'

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Book of Abstracts

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Anti-aging and neuroprotective roles of medicinal mushroom extracts

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Nutrition has relevant consequences on human health and increasing pieces of evidence indicate that medicinal mushrooms have several beneficial effects. One of the main issues in western countries is represented by the challenges of aging and age-related diseases, such as neurodegenerative disorders. Among these, Parkinson Disease (PD) affects 10 million people worldwide and is associated to α-synuclein misfolding, also found in other pathologies collectively called synucleinopathies. Here we show that two edible mushrooms (*Grifola frondosa* and *Hericium erinaceus*) exert anti-aging effects in a yeast model of aging. The beneficial effect of these mushrooms requires the inhibition of the Ras/PKA pathway upon fungal extract treatment, with increased expression of heat shock proteins, and increased mean and maximal lifespan. These fungal extracts also reduce the toxicity of α-synuclein exogenous expression in yeast cells, resulting in reduced ROS levels, lower α-synuclein membrane localization and protein aggregation. The neuroprotective activity of *G. frondosa* extract was also confirmed in a PD model of *Drosophila melanogaster*. Together these data suggest the use of *G. frondosa* and *H. erinaceus* as functional food to prevent age-related disorders.