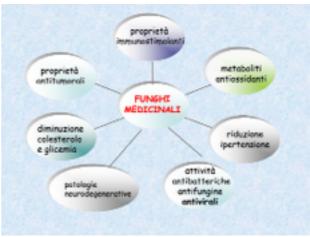
NEUROPROTECTIVE EFFECTS OF HERICIUM erinaceus Prof.ssa Paola Rossi

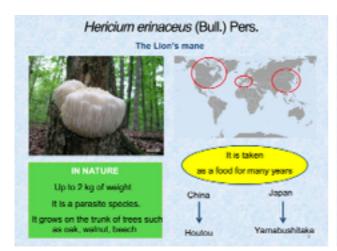
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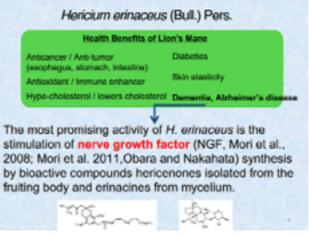
Recent discoveries have opened up an exciting opportunity for developing new types of therapeutics from medicinal mushrooms.

Hericium erinaceus (H. erinaceus) is a traditional edible mushroom in several Asian countries, and has generally been used as a food and herbal medicine. The potential neuroprotective effects of Hericium erinaceus in neurodegenerative diseases, including dementia, Alzheimer and motor dysfunction, have attracted considerable attention. We studied the effect of 3 months oral supply of Hericium erinaceus both in vitro and in vivo experiments. Mice hyppocampal sagittal slices 200-300 mM of depth were prepared by 40-50 days old mice after placebo or after Hericium erinaceus. Spontaneous and evoked activity at the synapse between mossy fiber-CA3 neurons shows a statistically significant increases, probably due to an increase in neurotransmitter release from mossy fiber terminal. Hericium treated mice in PCR experiments show a significant increase in mRNA NGF expression in hippocampus. In vivo explorating behavior, and space-memory were tested. In conclusion, 3 months Hericium erinaceus oral supply in wild-type mice increases neurotransmitter release and the level of NGF-mRNA in hippocampus and increases exploratory activity, spatial memory, recognition memory in learning and memory test in vivo.









THE HIPPOCAMPUS IS POSTULATED TO ENCODE WORKING MEMORY



Long-term modifications of synaptic transmission demonstrated in hippocampal excitatory synapses are thought to be cellular mechanisms underlying learning and memory (Treves 2004, Lisman 2007)

3 MAIN QUESTIONS:

EFFECT OF *H. ERINCEUS* 3 MONTHS ORAL SUPPLY IN WILD-TYPE MOUSE

QUESTION 1: mRNA NGF expression in hippocampus

QUESTION 2: spontaneous and evoked synaptic activity expression in hippocampus

QUESTION 3: spatial memory



CONCLUSIONS

HERICIUM 3 MONTHS ORAL SUPPLY IN WILD-TYPE MOUSE

- 1. INCREASES mRNA NGF EXPRESSION IN HIPPOCMPUS
- 2. IMPROVES SPONTANEOUS AND EVOKED SYNAPTIC ACTIVITY IN THE HIPPOCAMPUS POSSIBLY THROUGH AN INCREASE IN NEUROTRASMITTER RELEASE
- INCREASES EXPLORATORY ACTIVITY, SPATIAL MEMORY, RECOGNITION MEMORY