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Ameliorating effect of snail (*Helix Aspera*) extract on rats with experimental neurodegenerative disorders

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Methodology and Theoretical Orientation: Snail extract (SE) is a rich source of biologically active substances with strong anti-inflammatory, antioxidant and immunomodulatory activities. We evaluated SE effects in experimental models of Alzheimer's disease (AD) and Parkinson's disease (PD). Crude mucus was collected from snail *Helix aspersa* and fresh extract was purified. PD was induced via 6-OHDA injection (10µg /2 µl) in right striatum of male Wistar rats. 6-OHDA-lesioned group received for 13 days fresh snail extract orally (0.5 ml/100 g b.w; 6 days before and 7 days after striatal lesion). Behavioral data and biochemical parameters of oxidative stress were measured in 6-OHDA-lesioned group without treatment as well as in sham-operated (SO) rats. AD was induced via scopolamine treatment (Sco, 2 mg, i.p, 11 days). Snail+Sco treated group received for 16 days SE orally (0.5 ml/100 g b.w; 5 days before, and 11 days simultaneously with Sco). Changes in lipid peroxidation (LPO) and total glutathione levels, as well as the activities of superoxide dismutase, catalase and glutathione peroxidase in the rat brain structures were assayed spectrophotometrically.

Findings: The results of behavioral tests showed that in 6-OHDA and Sco groups there were significant motor, memory and biochemical impairment in compared to SO and control groups. The SE treatment had a memory improving effect on demented rats, and memory and

motor beneficial effect in PD group. These changes were accompanied by significant decrease in brain LPO and recovery of superoxide dismutase activity, increased significantly both by the 6-OHDA and by Sco treatment.

Conclusion and Significance: Snail extract had a beneficial effects on experimental rat model of AD and PD confirmed both behaviorally and biochemically.

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Biography

Lyubka Tancheva is an associated professor at the Institute of Neurobiology, Bulgarian Academy of Sciences and also is working as Weston Professor of Weizmann Institute of Science, Rehovot, Israel. Her research interests are in the field of pharmacological treatment of cognitive disorders with natural and synthetic compounds. She is working on the complex mechanisms of neurodegenerative disorders and the possibilities for their prevention. Tancheva is a co-author of several guidebooks & educational materials for students in Medicine and Pharmacy. She also is supervisor of many Master and PhD students.

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