AMELIORATION OF AMYLOID B-INDUCED COGNITIVE DEFICITS BY ZATARIA MULTIFLORA BOISS. ESSENTIAL OIL IN A RAT MODEL OF ALZHEIMER’S DISEASE

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Introduction: The limitations of current Alzheimer’s disease (AD) therapeutics have prompted investigation into innovative therapeutics including those from medicinal plants. Numerous plants have been tested for their potential for alleviating symptoms of AD. Zataria multiflora Boiss. (ZM) from Lamiaceae family has been used in Iranian traditional medicine for its beneficial effects on mental abilities.

Aims: The efficacy of ZM essential oil in attenuating amyloid β-induced cognitive deficits was evaluated in a rat model of AD.

Methods: Amyloid β-protein (Aβ) fragment 25-35 was injected bilaterally in the CA1 region of rats hippocampus and the effect of different doses of ZM essential oil (50, 100, or 200 µL/kg) on cognitive function was investigated in the Morris water maze. Acute toxicity of the essential oil was also studied.

Results: The results showed increases in escape latency, traveled distance, heading angle, and decreases in target quadrant entries in Aβ-received groups as compared to the control group. This impairment was reversed by ZM essential oil. The results of acute toxicity testing revealed that the calculated LD50 (1264.9 µL/kg) is much higher than the therapeutic dose (100 µL/kg).

Conclusions: It seems that antioxidant, anti-inflammatory, and anticholinesterase activities of ZM or its main constituents might contribute to its beneficial effects in this model. Our findings suggest that ZM may be a potentially valuable source of natural therapeutic agents for the treatment of AD. However, further investigations are necessary to establish its clinical efficacy and potential toxicity, before any recommendations concerning its use as an anti-dementia treatment.