

## Effects of oral supplementation of *Spirulina microalgae* on memory consolidation of inhibitory avoidance in female rat pups

Nasroallah Moradi kor<sup>1,3</sup>, Hadi Rashidi Pour<sup>2</sup>, Ali Ghanbari<sup>1</sup>, Ali Rashidy-Pour<sup>1\*</sup>

<sup>1</sup>Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran

<sup>2</sup>DVM Student, Faculty of Veterinary Medicine, Islamic Azad University, Science and Research Branch, Tehran, Iran

<sup>3</sup>Student's Research Committee, Semnan University of Medical Sciences, Semnan, Iran

**Background:** Microalgae's have been shown have medicinal properties but any study has not been conducted to investigate its effects on learning and memory in female pups rat. We hypothesized that *Spirulina platensis* microalgae (SPM), because of its components, can enhance memory consolidation in rats. Therefore this study was conducted to investigate the effect of different levels of SPM on memory consolidation in female rat pups.

**Methods:** In this study fifty female pups rat were randomly divided into five groups (10 rats in each group) and orally treated with SPM for 21 days. The control rats received the distilled water. The animals in the other groups were orally treated with SPM at rates of 50, 100, 200 and 400 mg of SPM/kg of body weight. Inhibitory avoidance (IA) task was performed to evaluate memory consolidation. For habituation to apparatus, each rat was placed in the illuminated compartment and the guillotine door was raised 5s later. After entering to the dark compartment, animals were transferred into the home cage and the trial was repeated 30 min later. 30 minutes after second session, rats were trained in IA task (one trial, 0.5 mA, 3s foot shock). Memory retention was tested 24 h later during which the latency to re-enter to the dark compartment was recorded. This latency time was considered as the measure of memory retention.

**Results:** The results showed that SPM enhances memory retention at doses of 200 and 400 mg/kg than the control group.

**Conclusion:** It can be concluded that oral supplementation of *Spirulina microalgae* can improve memory consolidation which may be related to their compounds.

**Key words:** Memory consolidation, Pups rat, *Spirulina microalgae*