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Effects of Silkworm (*Bombyx mori* L.) Powder on Lipofuscin, Acetylcholine and Its Related Enzyme Activities in Brain of SD Rats

Soo-Hyun Park*, Dae-Ik Kim, Jeung-Min Kim, Jin-Ho Choi, Heui-Sam Lee¹ and Kang Sun Ryu¹

Lab. Biochemistry, Faculty of Food Science and Biotechnology, Pukyong National University; ¹Dept. of Sericulture & Entomology, National Institute of Agricultural Science & Technology, RDA, Suwon 441-100, Korea

This study was designed to investigate the effects of silkworm (*Bombyx mori* L..) powder on lipofuscin, acetylcholine (ACh) and its related enzyme activities in brain of rats. Sprague-Dawley (SD) male rats (160 ± 10 g) were fed basic diet (control group), and experimental diets (SWP-200 and SWP-400 groups) added 200 and 400 mg/kg BW/day for 6 weeks.

In case of liver membranes, lipofuscin (LF) levels resulted in a slight decreases (4.6% and 11.5%, respectively) in SWP-200 and SWP-400 groups compared with control group. But in case of brain as the most sensitive organ, LF levels were remarkably inhibited about 16.7% and 20.0% in SWP-200 and SWP-400 groups compared with control group. There were no significant differences in acetylcholine (ACh) syntheses as a very important neurotransmitter, and choline acetyltransferase (ChAT) activities as a synthesis enzyme of ACh, and acetylcholinesterase (AChE) activities as a hydrolysis enzyme, which were concerned in transmission of neuron through synapses in brain of SWP-200 and SWP-400 groups compared with control group. Monoamine oxidase-B (MAO-B) activities were significantly inhibited (8.8% and 10.2%, respectively) in brain of SWP-200 and SWP-400 groups compared with control group. These results suggest that inhibiting effects of LF accumulation and MAO-B activity of silkworm powder (SWP) may play a pivotal role in attenuating a various age-related changes for improvement of brain function.