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Effects of Mulberry (*Morus alba* L.) Leaf Extract on Lipofuscin, Acetylcholine and Its Related Enzyme Activities in Brain of SD Rats

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This study was designed to investigate the effects of mulberry (*Morus alba* L.) leaf extract (MLE) 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 (MLE-100 and MLE-300 groups) added 100 and 300 mg/kg BW/day for 6 weeks.

In case of liver membranes, lipofuscin (LF) levels resulted in a slight decreases (2.3% and 8.0%, respectively) in MLE-100 and MLE-300 groups compared with control group. But in case of brain as the most sensitive organ, LF levels were remarkably inhibited about 10.8% and 18.3% in MLE-100 and MLE-300 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 MLE-100 and MLE-300 groups compared with control group. Monoamine oxidase-B (MAO-B) activities were dose-dependently inhibited (7.0% and 14.0%, respectively) in brain of MLE-100 and MLE-300 groups compared with control group. These results suggest that inhibiting effects of LF accumulation and MAO-B activity of mulberry leaf extract (MLE) may play a pivotal role in attenuating a various age-related changes for improvement of brain function.