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Effects of Mulberry (*Morus alba* L.) Leaf Extract on Oxidative Stress and Membrane Fluidity in Brain of SD Rats

Dae-ik Kim*, Soo-Hyun Park, Jeung-Min Kim, Jin-Ho Choi, Young-Ho Baek¹, Heui-Sam Lee² and Kang Sun Ryu²

Lab. Biochemistry, Faculty of Food Science and Biotechnology, Pukyong National University; ¹Dept of Physical Education, Pusan National University; ²Dept. of Sericulture & Entomology, National Institute of Agricultural Science & Technology, RDA, Suwon 441-100, Korea

This study was designed to investigate the effects of mulberry (*Morus alba* L.) leaf extract (MLE) on oxidative stress and membrane fluidity in brain membranes of rats. Sprague-Dawley (SD) male rats (160±10g) 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. Cholesterol accumulations resulted in a slight decreases (4.6% and 5.6%, respectively) in brain mitochondria and microsomes of MLE-300 group compared with control group. Membrane fluidities were dose-dependently increased (2.2% and 5.1%, 5.0% and 15.2%) in brain mitochondria and microsomes of MLE-100 and MLE-300 groups compared with control group. Basal oxygen radicals (BORs) in brain mitochondria and microsomes were significantly inhibited (15.7% and 25.1%, 9.0% and 12.4%, respectively) by MLE-100 and MLE-300 groups compared with control group. Induced oxygen radicals (IORs) in brain mitochondria and microsomes were significantly inhibited (8.9% and 13.1%, 16.5% and 23.2%, respectively) by MLE-100 and MLE-300 groups compared with control group.

Lipid peroxide (LPO) levels were significantly decreased (8.5% and 18.1%, 7.6% and 12.3%) in brain mitochondria and microsomes of MLE-100 and MLE-300 groups compared with control group. Oxidized protein (OP) levels were dose-dependently decreased (4.3% and 14.2%, 10.0% and 10.9%, respectively) in brain microsomes of MLE-100 and MLE-300 groups compared with control group. These results suggest that administration of MLE may play an effective role in attenuating oxidative stress and increasing membrane fluidity in brain membranes.