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Effects of Mulberry (*Morus alba* L.) Leaf Extract on Oxygen Radicals and Their Scavenger Enzymes 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 oxygen radicals and their scavenger enzymes in brain membranes 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. Hydroxyl radical ($\cdot\text{OH}$) levels resulted in a significant decreases (13.4% and 21.1%, 12.0% and 13.4%, respectively) in brain mitochondria and microsome of MLE-100 and MLE-300 groups compared with control group. Superoxide radical ($\text{O}_2^{\cdot-}$) levels were significantly decreased about 12% in brain cytosol of MLE-300 group compared with control group. Lipid peroxide (LPO) levels were slightly decreased (8.5% and 18.1%, 7.6% and 12.3%, respectively) in brain mitochondria and microsomes of MLE-100 and MLE-300 groups compared with control group. Oxidized protein (OP) levels were considerably decreased (4.3% and 14.2%, 10.0% and 10.9%, respectively) in brain mitochondria and microsomes of MLE-100 and MLE-300 groups compared with control group.

Mn-SOD activities in brain mitochondria were significantly increased (13.5% and 18.6%, respectively) in MLE-100 and MLE-300 groups, and Cu,Zn-SOD activities in brain cytosol were also dose-dependently increased (4.2% and 17.7%, respectively) in MLE-100 and MLE-300 groups compared with control group. GSHPx activities in brain cytosol were remarkably increased (17.2% and 23.9%, respectively) in MLE-100 and MLE-300 groups compared with control group. These results suggest that anti-aging effect of mulberry leaf extract (MLE) may play a pivotal role in attenuating a various age-related changes in brain.